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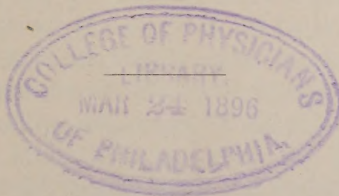
Class _____ No _____

Presented by
J. F. Edwards, M.D.

THE
Annals of Hygiene
A JOURNAL OF HEALTH.

EDITED BY
JOSEPH F. EDWARDS, A.M., M.D.

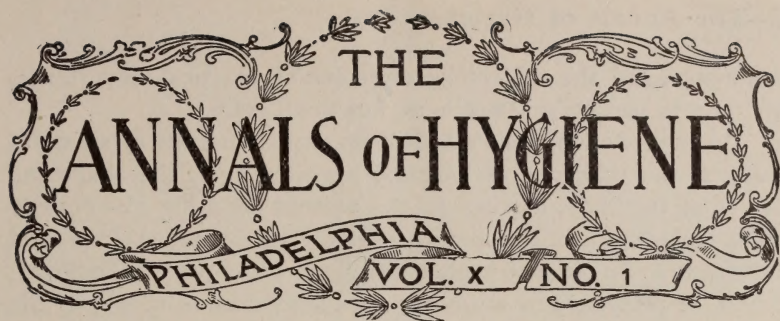
VOLUME X.
JANUARY TO DECEMBER, 1895.



PHILADELPHIA :
UNIVERSITY OF PENNSYLVANIA PRESS,
1895.

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COMMUNICATIONS.

Habitual Postures of School-Children.¹

BY ELIZA M. MOSHER, M.D.,

Brooklyn, N. Y.

“How use doth breed a habit in a man.”

—SHAKESPEARE, *Two Gentlemen of Verona*, ACT. v.



HABIT is the repetition in a more or less involuntary manner of an act originally performed with some degree of volition. Among the forces which dominate human beings, there is none more potent than habit. Education, in essence, is intellectual growth through repetition. The child voluntarily repeats his task until he is able to recall it with slight volitional effort. With what clumsy fingers the pianist strikes the keys until, by a multitude of repetitions in which brain-cells and muscles have co-ordinated, he acquires the facility wherewith to charm his listeners!

The influence of habit upon the development of moral character is well understood by parents and educators. The repetition of physical postures and movements has the power, in a similar way, to modify and recast the shape of the body.

Physical beauty depends largely upon the element of physical symmetry. It is worth while, therefore, to study postures which tend to maintain bodily symmetry, if only for the purpose of enhancing personal attractiveness. Add the further fact that physical health depends largely upon the maintenance of bodily

¹ From the Educational Review.

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symmetry, and the subject becomes one of practical importance, not only to parents and teachers, but to all men.

In the following pages I shall present the results of a careful study of the influence of habitual postures upon the shape and health of the body, leaving for the present the other and equally important element of symmetry,—namely, the influence of habitual movements. In order to present the subject in a practical manner, it will be necessary to study the mechanics, so to speak, of the various postures which the body naturally takes standing, sitting, and lying. By this means we shall be able to decide which postures it is safe to permit to become habitual, and which ones tend to loss of symmetry.

In standing, the lower extremities are placed beneath the trunk in one of three ways. All others in which equilibrium is attained are modifications of these.

First, With both extremities placed evenly beneath the trunk. (Fig. 1.)

Second, With one leg supporting the trunk and the other thrown forward, as in walking. (Fig. 2.)

Third, With one leg supporting the trunk and the other thrown to the side. (Fig. 3.)

In the first position the trunk is evenly poised upon its supports, with all its parts symmetrically placed. This would be a proper one to assume habitually, were it not that it keeps both extremities in muscular activity at the same time, whereas they demand the privilege of working alternately. Involuntarily one support drops out from under the weight, and the position changes to the third, which, as will be shown later, is an objectionable one.

The second position—namely, with one leg in advance of the other, as in walking—permits the body to rest upon one extremity, with very slight reduction of the normal spinal curves. The bones of the skeleton are all so placed in this posture as to retain the muscles in normal symmetrical relations as regards the distance between their origin and attachment, the direction of their fibres, etc. The backward movement of the head and shoulders to balance the weight of the forward leg calls into action the muscles of the back and shoulders, while those upon the front of the body are placed in an equal degree of extension. The influence of this is to place the chest in a position favorable to respiration; hence this posture is conducive to chest expansion. The head cannot

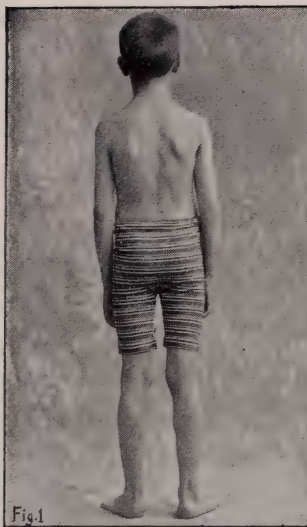


Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

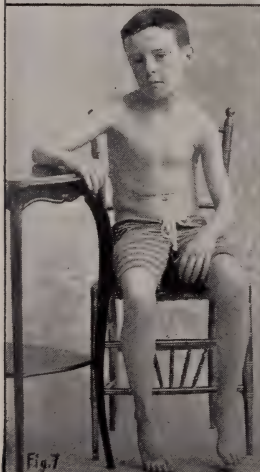


Fig. 7



Fig. 8



Fig. 9

drop to either side without disturbing the equilibrium of the body, and the soft tissues of the face retain their symmetry. The ease with which the weight of the trunk can be transferred from one extremity to the other makes this a position which can be retained a long time without undue fatigue, and which renders it favorable to the making of gestures and the use of the voice; hence it naturally becomes the favorite posture of the orator and the public singer. Because of the narrow base which it gives to the body, however, and the corresponding sense of insecurity which the individual unaccustomed to it feels, this is not a posture naturally chosen; but with a stable foundation beneath the feet it is one easy to assume, and children should be taught to fall into it habitually.

The third posture in standing is the one most commonly chosen, doubtless because of the broader base which it gives for the support of the trunk when needed. The change, also, from the walking posture to this is so radical that it gives a sense of rest most grateful to the tired tissues.

The best way to make a critical study of this position with relation to its healthful tendencies or otherwise is to examine an individual whose occupation has, for several years, necessitated the standing posture, and who has acquired the habit of dropping upon one and the same leg.

Understanding symmetry to mean "exact accordance of the two halves of one body," we place the person to be studied evenly upon both feet, and compare the two sides. We find in most cases the following variations, more or less well marked according to the general health of the individual and the length of time the posture has been habitual. (In robust persons the muscles and soft tissues are not moulded by posture as readily as in the poorly-nourished and over-worked.)

If the left extremity has been the favorite one (as it often is), the left thigh will measure in circumference a little more than its fellow. The left hip will be found higher than the right, and the spinal column slightly curved laterally, presenting its concavity towards the supported side.

In all cases there is marked projection of the angles of the ribs upon the unsupported side, indicating more or less turning of the bodies of the spinal vertebræ in that direction. The ribs upon the left side approach each other and the top of the hip, shortening in a very marked manner the body line upon that side;

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the spaces between the ribs on the right side are proportionately widened, and the lengthened body line lacks the curve presented by the opposite side. The left shoulder is lower than the right; the left hand accordingly reaches a lower point upon the thigh than does its fellow. The head drops towards the left shoulder (to aid the shoulder and arm in balancing the weight of the unused leg), while the chin points in the opposite direction. There is marked loss of symmetry between the two sides of the face, produced by the influence of gravitation and unequal muscular activity. Unmodified by defects of sight or hearing, or by a variation in the length of the extremities, the lines of the face always manifest the following deviations from the normal, in all cases where this position has become a habit: The angle of the jaw becomes the lowest portion of the face, hence the soft tissues of the cheeks gravitate in that direction, producing a rounded contour on the lower side, in contrast with the flattened outline of the opposite cheek. The angle of the mouth usually drops a little; sometimes, however, it becomes elevated instead. The median line of the nose frequently inclines to the left as it approaches the tip, and the nostril is drawn upward, shortening the distance between the angle of the nose and the eye, as compared with the corresponding line on the opposite side. The left nostril is also dilated more than on the right, upon which side the cavity of the nose is somewhat obstructed.

The cheek fold becomes more or less erased on the left (by gravitation of the tissues outward), while on the right the same force deepens and elongates it. The left lower lid is pulled slightly downward, increasing the breadth of the opening at the outer angle of the eye. The same tractile force applied to the right eye upon the nasal side lengthens, or seems to lengthen, the opening, at the same time widening the space at the inner angle. Hence the left eye becomes oval, and the right eye linear in all marked cases. Lack of symmetry in the two halves of the face has long been observed by artists and photographers, but the casual observer seldom takes note of it until his attention is called specially to the subject. The changes in the face which I have here pointed out are all produced by carrying the head habitually on one and the same side, whatever the cause. Most often, however, it occurs as a result of standing and sitting with the trunk tilted to one side. When asymmetry is produced by defective vision, the face lines differ from those described according to the angle at which the best refraction is obtained.

The neck muscles tell the story of habitual posture more loudly, if possible, than do the lines of the face. Those which are attached to the base of the skull participate most markedly in the changes observed elsewhere.

The external muscles of the skeleton are not the only ones involved in this process of change. Those which move the eyeball are, to say the least, placed at a disadvantage in side-wise postures of the head, certain of them being forced to do more than their share in the work of rotation of the ball. No observations have as yet been made which demonstrate special abnormal conditions thus produced ; but it is not unreasonable to include this posture among the causes of eye fatigue.

There is often a demonstrable decrease in the size of the chest on the side of the elevated shoulder, due, doubtless, to the changed position of the ribs and shoulder-blade, to which are attached important respiratory muscles.

Shortening of the abdominal wall on the supported side, by approximation of the ribs and hip, displaces the intestines downward, and in the direction of greater space. This is specially injurious to growing girls, because of the unequal pressure thereby placed upon the movable organs within the pelvis. Habitually crowded towards the side of support, they acquire this position permanently, the result of which is an impeded circulation, and a positive tendency to pelvic disease later in life. With this array of facts before us, we recognize in this common posture—namely, with one leg supporting the trunk and the other thrown out to the side—one which we cannot too strongly deprecate.

In sitting, the body naturally assumes a variety of attitudes, which, for purposes of study, may be classified as follows :

(1) With pelvis resting equally upon the chair (or other support), spinal column erect, holding the head poised upon its summit. Arms balanced on the line of the hips. (Fig. 4.)

(2) The same position, with shoulders placed diagonally to the transverse diameter of the hips. (Fig. 5.)

(3) Body erect with both arms supported. (Fig. 6.)

(4) With one arm supported. (Fig. 7.)

(5) Arms and head in front of trunk. (Fig. 8.)

(6) With pelvis resting on the front of the chair, and shoulders braced against its back. (Fig. 9.)

The first of these, like the first and second postures in standing, places the trunk in a symmetrical position. It is one in

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which gravitation largely replaces muscular activity, therefore it is economic of force. With support applied to the lower part of the back, and below the shoulder-blades, it can be maintained a long time without general fatigue. It is, therefore, the position which should be acquired in early life as the habitual one in sitting.

The second posture—namely, with spinal column in rotation—is an exceedingly dangerous one if permitted to become habitual, because it places the bony segments of the spinal column in a position calculated to produce elongation of some of their connecting ligaments, with shortening of others. The muscles of the back are also used unequally, the whole tending towards production of that dreaded condition, lateral curvature of the spine. Too much care cannot be given to the prevention and correction of the habit of sitting or standing with the shoulders out of line with the hips.

The third position—namely, with both arms supported—while it is not especially detrimental to health, in time destroys beauty of figure. The trunk is, in shape, an inverted pyramid, poised upon a pedestal, the pelvis. The arms, attached to its base, act as weights, which, by their adjustments, have power to bend and mould the pliable, pyramidal trunk almost at will. Suspended upon the side line, they balance each other. Supported, nay, pushed upward by resting upon chair-arms, or desk, they elevate the shoulder-blades, with which, by virtue of their intimate union, they are practically continuous. The resultant shape betrays the habit.

The fourth posture in my classification tends to shorten the body line upon the weighted side, with the far-reaching results described in connection with the third position in standing. Combine with it more or less rotation of the spine, and this attitude becomes one of serious menace, especially to growing girls.

The fifth position, or that in which the arms and head drop in front of the trunk, is also productive of evil results, if often assumed. In this position the muscles of the chest, after drawing the arms forward, remain in the position of contraction, one which is unfavorable to free inspiration. The shoulder-blades are widely separated, with their posterior borders everted. The weight of the head drops upon the muscles which connect it with the spine. These, with other back muscles, become elongated and weakened by this gradual stretching process. The upper

antero-posterior curve in the spinal column, under the influence of this posture, deepens, and the obliquity of the ribs increases, diminishing the capacity of the chest, and with it the vital force of the body. Furthermore, this posture tends to fold the body together upon its anterior aspect. The result of this is to crowd the contents of the abdomen backward and downward, with the secondary effect of displacing and deforming the movable and easily moulded organs of the pelvis. It is easy to demonstrate, therefore, that the indulgence in this habit of posture in early life, not only produces narrow chests, round shoulders, and drooping head, but much of the ill health to which girls so often become the victims.¹

With the pelvis slipped forward upon the chair, and shoulders braced, as in the sixth position, the weight of the trunk falls mainly upon the sacrum and coccyx. These bones are not sufficiently cushioned by flesh to protect the nerves which lie upon their surface, hence the latter are liable to become injured by the pressure thus applied. In this position, too, the normal curves of the spinal column are replaced by one long one, with its convexity presenting posteriorly. Important muscles and ligaments are thus placed unduly upon the stretch, making permanent curvature of the spine in this direction easy of occurrence in individuals of weak and lax tissues.

The sitting posture, at best, is not a safe one for children and delicate individuals to occupy continuously. The influence of gravitation, however, applied to the spinal column, is one which is difficult for so movable a structure to resist; so that the tendency to the production of abnormal curves is always great and increasingly so the longer the posture obtains.

No one position in bed should be allowed to become habitual. The only one in which all the parts of the body are placed symmetrically (namely, upon the back with a low pillow beneath the head), unfortunately, is not conducive to the free circulation of the blood. Side positions interfere more or less with respiratory movements, and the prone position does not allow free access of air to the nostrils; hence the importance of frequent change without indulgence in a favorite posture.

¹ It is not wise to direct children to "throw their shoulders back," as in attempting to do this they assume a position which they cannot retain involuntarily. They should, instead, be directed to raise the chest, and place the shoulders and elbows upon the line of the hips.

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The restless activity peculiar to infancy and childhood is the guardian of physical symmetry during this period. In sleep, as well as during waking hours, the muscles keep busy turning and twisting the little structure in a way our gymnasium teachers might well emulate. Occasionally, a specially "good baby" suffers in shape, because he does not demand for himself the right to kick and cry. Through some physical defect on the part of mother or nurse, infants are sometimes held habitually upon one and the same side. Pressure thus applied unequally to the easily-moulded bones, is liable to produce one-sidedness of the skull and chest, and sometimes of the pelvis also, which mars the individual through life.

With school-work begins confinement within doors, and to the sitting posture, with a subduing of the restless activity so long the child's safeguard. Rarely is the seat assigned the little victim so constructed as to be helpful in maintaining the body in equilibrium. A desk is placed before him, which eloquently offers support, eagerly accepted by one or both elbows, placing his body almost continuously in the third or fourth position of our classification. Should the teacher's desk and the black-board be at his right or left, as is often the case, instead of in front of him, he is obliged, in order to give her his attention, to twist his body into the second and most dangerous of the sitting postures described. The old custom of requiring children to sit sidewise at the desk to write held the body with the spine placed strongly in rotation.

Relief from the monotony of sitting comes with the call to recitation. Here, perchance, the pupil stands, although if the opportunity presents to lean against the wall or seat, he quickly utilizes it; otherwise he is sure to swing the body over upon one leg, into the third position of our series. In spite of his teacher's oft-repeated command, "stand up," he drops again and again into this posture, until it becomes habitual, with its far-reaching evil consequences.

The hands are troublesome members at times, and the disposal of them becomes a vexed question to teachers. The study of our fifth position in sitting shows that no more serious mistake *can* be made in the school-room than to require children to fold the arms across the chest. Folding the arms behind the back, as a change from forward positions, is sometimes restful, but, if long continued, tends to deepen the normal curves of the back.

It is a common practice for children to carry a pile of books upon the arm to and from school. This is harmful in its tendency, for several reasons: It confines one arm, preventing its easy swing in walking, an important element in equalizing the circulation of the blood. It unbalances the body, making necessary a shifting of the parts to restore equilibrium, thus placing the trunk in an unsymmetrical position. Most individuals, adults as well as children, acquire the habit of using one arm more than the other, in carrying books, bags, etc. That the habitual weighting of the same side tends to produce deformity is shown in the figure of the man who has carried a pack on one shoulder continuously.

Nearly all occupations in life present temptations to the body to acquire a habit of posture which, in time, modifies the shape of the individual. The teacher herself, while using her best efforts to train her pupils to right habits of posture, is likely to become unsymmetrical. A careful physical examination, made by me of over 200 teachers (women), revealed the fact that a majority of them had the mark of their occupation stamped upon them, either in the twist of body, which results from standing on one and the same leg, with the other thrown to the side, or the high shoulders and projecting head, caused by sitting habitually in a chair with arms.¹

The woman who sews by hand acquires a low right shoulder, with head dropped towards the opposite side; while the one who spends many hours each day working on the sewing-machine becomes high-shouldered and short-necked. The man who stands at his desk all day acquires the same shape, so does the sailor who climbs the mast. The man of letters does not sit over his desk many years without elongating the muscles which attach the head to the spine, thus acquiring the forward poise of the head so often seen in the pulpit and upon the lecture platform. Drug and dry-goods clerks, if right-handed, work with the body resting on the right foot. The resultant shape we are all familiar with, if observant. The horse-car driver, the truckman, and even the hod-carrier, all receive in time their trade-mark.

Since the evil results of habits of posture are so far-reaching and so subtle in their influence upon the human body, it becomes the duty, not alone of educators, but of business men who employ

¹ Nearly all these women wore corsets habitually; hence, the statement that this garment prevents asymmetry is fallacious.

large numbers of people, and of architects who plan large public buildings, to make the surroundings of those for whom they are responsible as hygienic as possible.

Chairs¹ and other seats should be provided which help the body to maintain itself in symmetrical postures. They should be so placed as to make it unnecessary to turn the head and shoulders in the act of giving attention. Sufficient space should be allowed for the extension of the lower extremities. Desks upon which the elbows can rest should not be placed before school-children.²

Workshops should be so planned that operatives can change their work from side to side, or vary it, to prevent them from becoming unsymmetrical.

Furthermore, corrective exercises of three minutes' duration should be given, at stated intervals during the day, in all our schools and workshops, with the definite object in view of preventing loss of symmetry and deterioration of health.

¹ Dr. William Schulthess (*Zeitschrift für Orthop. Chirurgie*, Bd. 1, Heft 1) describes a seat which he has planned, with special reference to the prevention of spinal curvatures in children. His plan seems to me to embody the fundamental principles involved in the construction of a suitable school room seat.

² It goes without saying that the school-room desk cannot be dispensed with. It, however, should be so constructed as to be a help and not a hinderance to the symmetrical growth of the pupil. To be of assistance, it should consist of two parts; a writing table and a reading desk. The former should be low, having a flat top, and ample space beneath for the knees. Moreover, it should be only long enough to accommodate the copy book.

The reading desk (which might consist of a section of the table) should be adjustable, swinging upward and forward to place the type to be read at the right focal distance for each individual pair of eyes, thus preventing the necessity of dropping the head and shoulders forward in study.

Such a school-desk would leave the arms free, maintain the body erect, and prevent eye-strain.

The Fauna of Dead Bodies.

M. Mégnin, in a work presented to the Paris Academy of Medicine on the fauna of dead bodies, indicates the importance of these entomological studies with regard to medical jurisprudence. The insects appear in relays according to the period of putrefaction. The first which appears is the *musca curtonea* and *callophora*. It is present on dead bodies buried in the most careful manner. The eighth group, *coleoptera*, are found in dead bodies which have been buried four years. The dust that remains after the decomposition of the body is really the excreta of these animals.

School Sanitation.

BY J. DEARNESS,

Inspector of Schools, London, Ont.



ENTLEMEN : It is appropriate that at a meeting of a country's health officers considerable attention should be given the questions that concern the hygienic conditions of the public schools. Through these schools every citizen must pass, and that at a susceptible time of life. "As the twig is bent the tree's inclined" is no less true of the physical than of the mental bias received in childhood.

The title of my subject offers a wide and varied choice of topics, but time compels me to choose but a few for notice. To start with, the child from the home raises at the outset the question whether the latter is contributing its due share to the promotion of the health of school children. With proper and sufficient food, sleep, and recreation, we should not hear much of injury from over-pressure or multiplicity of studies, providing that pupils are not sent to school until they are at least seven or eight years of age. I am not one who believes in many or long school tasks to be prepared by home study. Instead of the note at the foot of the usual monthly school report requesting the parents to see that the child does his or her assigned home lessons in the evening, it would be better to say, The teacher will guarantee five hours' active application to study daily in the school-room if the parent will secure that the child receive three nutritious meals, at least ten hours' sleep, and one or two hours' recreation every day. Farmers know that it pays to care for and feed well the young stock on their farm; would that they were equally solicitous to see their children thrive well physically. At no other period in a person's lifetime does he need more careful attention to his food, sleep, and exercise than during his school days.

There is good reason to believe that Ontario has an educational system, taken all round, not surpassed in merit by that of any other country in the world; and what is a higher recommendation, we are not resting upon our distinction, but are still making progress. Yet I confess to the belief that we are moving pretty slowly along the line of physical education; in fact, the

rising generation, however superior it may be mentally, scarcely promises to be equal physically to the passing generation. Within twenty years I know that school seats and desks and blackboards are greatly improved, lighting is somewhat better, text-books are better printed, but convenient supply of wholesome drinking water is not more general, out-door closets are not more healthful, and certainly in the improved substantial school-buildings the artificial means of ventilation in vogue are not equal in efficiency to the natural means of those times, when an open fireplace sucked the fresh air through countless chinks in the log walls, while the children, wearing thick hoddens-gray coats, heavy woollen socks, often two pairs, and stout cow-hide boots, little heeded the sharp draughts that swept along the floor. We learned then without teaching how to make a good use of recess. It is becoming the fashion now in some places to go to the gymnasium for recess. I think the substitution is a mistake. Precise gymnastic movements doubtless afford good training for will, eye, and voluntary muscles, but how do they benefit the involuntary muscular system? Let us have both,—a good muscular development and a good digestion. If I may have but one, I prefer the good digestion. Cheerful, spontaneous play is better for heart and stomach than gymnastics. As a preparation for the next session's lessons I greatly prefer the old-fashioned, jolly, rollicking, romping, spontaneous fifteen-minute recess to twice that time devoted to club-swinging or precise extension motions.

Speaking of recess takes me to the yard, and when there we might, if time permitted, notice the site, the source and supply of drinking water, and the out-closets. Respecting the last mentioned, the necessity for sanitary improvement is greater than I have words to express at this time. I appeal to officers of State and Local Boards of Health to have prepared a circular of plans and specifications for the construction, with directions for the sanitary maintenance, of these necessary buildings, and to put such circular periodically in the hands of every board of trustees. Distribution of such circulars among all school officers and the consequent improvement of school premises would educate the people generally upon an important sanitary subject.

LIGHTING.

Have you not again and again heard the remark made, What a large number of children wear spectacles now! I have heard

the increase accounted for on the ground that it is the custom now for parents to take short-sighted children to the optician or oculist to have their eyes fitted with glasses, and that formerly this was not the practice. There may be something in the opinion quoted, but the chief reason is doubtless that formerly there was less need to take children to the oculist than now.

Investigation both in Europe and America shows that the disease, myopia, is increasing alarmingly in all civilized countries, and two leading causes are inherited tendency and the unfavorable conditions of school-room life. It is argued that inherited tendency counts for much, because the examination of children in the higher social ranks, and consequently on the average drawn through a larger number of schooled generations, shows a larger proportion of near-sighted than the peasant and pauper classes of the same ages. In American cities white children show to a great advantage as compared with colored children in respect to near-sightedness.

In Europe, some of the ablest scientists and sanitarians, as Virchow and Cohn, Conrad and Pflüger, have given attention to this evil. In the United States, eminent men, like Agnew, Loring, Cheatham, Prout, and Lucien Howe, have practically studied myopia in the schools of the cities where they respectively reside. Ward McLean, in the *Popular Science Monthly*, November, 1877, summarized the study of the available literature on the subject, furnishing reports upon upward of 40,000 cases, and deduced the following "irresistible conclusions:—"

(1) That among youths who have never attended school and among children when they first enter school the percentage of near-sightedness is very small indeed.

(2) That very soon after entering school some children begin to show symptoms of the disease.

(3) That the number of children afflicted and the intensity of the disease gradually but surely increase through the entire school-life, from class to class, from year to year, until when colleges and universities are reached in many institutions half the students are more or less near-sighted.

The report made by Drs. Fitch and Kimball, upon an examination of the eyes of the children in the schools of Rockford, Ill., as quoted at a meeting of the National Education Association, gave the following results:

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				Boys' Myopic.	Girls' Myopic.
Children aged from	7 to	8 years		.8 per cent.	3.1 per cent.
"	"	"	9 to 10 "	3.5 "	5.9 "
"	"	"	11 to 12 "	2.5 "	5.5 "
"	"	"	13 to 14 "	6.3 "	13.0 "
"	"	"	15 and upward	17.7 "	16.8 "

If it be conceded that the present conditions of school-life tend to produce myopic vision, the question naturally arises, Are such conditions as produce this evil necessary or irremediable? I think not.

Mere naming some of the conditions suggests a remedy, others are due to faulty architecture of the building, such as wrong arrangement of the windows of the school-room, causing front light or dim light. Windows and seats should be placed relatively so that the light may be admitted mainly backward from the left. In an ordinary rural school-room they may be massed on the sides in the rear half or two-thirds of the room, the nearest one to the black-board sufficiently distant so as not to dim or obscure the writing on it by reflection.

Only those windows through which direct sunlight enters should be shaded. Shades should be of light color and the spring rollers bearing them, whether attached at the top or bottom, should always be attached to the sash, not to the frame, and be controlled by a cord that will not permit them to run the entire length of the shade.

Text-books ought to be on good paper, not blue-white, but unbleached, and the type large. I have not much fault to find with our public school text-books, but the high school text-books are not all above criticism.

Those hard, cheap lead-pencils, used so much now on the scribbling-book paper, are ruinous to the eyes.

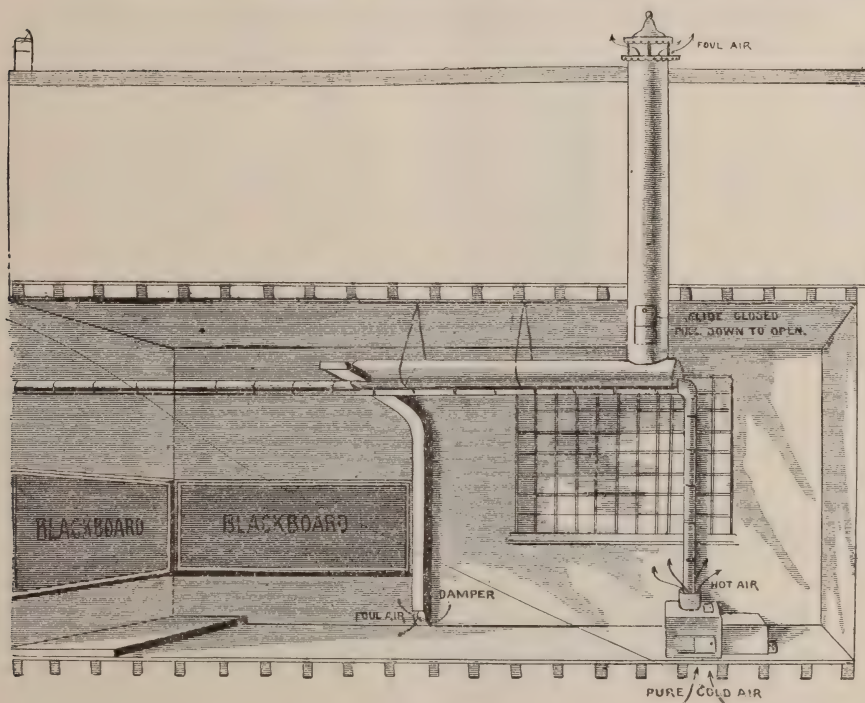
The position that nine-tenths of the pupils will assume at the desks, unless the teacher exercises constant supervision over their attitude, injuriously affects the eyes. I submit the question to the medical men here whether the engorgement of the cells supplying the ciliary muscles caused by the suspended position of the head may not lead to inelasticity of these muscles.

In spite of the utmost care on the part of the teacher to habituate his pupils to maintain a correct attitude, the wretched construction of some school-desks or the seating of a child too large, or, worse still, too small, at even a well-constructed desk will

cause the child to strain and injure the eyes. Defective seating is chargeable, too, with malformation of the spine and other bones, and with various injuries to pupils to which I have not time to refer.¹

Long home lessons pored over with perhaps imperfect lamp-light cannot but injure the eyes, possibly in some cases contribute to myopia more than all the other causes combined.

To sensitive eyes bad ventilation is doubtless very irritating



and injurious. Dr. Loring writes: "I am therefore of the opinion that bad air alone, acting as the primal cause, may set in train a series of morbid processes which may, and often do, affect not only the working capacity and integrity of the eye, but which may lead even to its destruction."

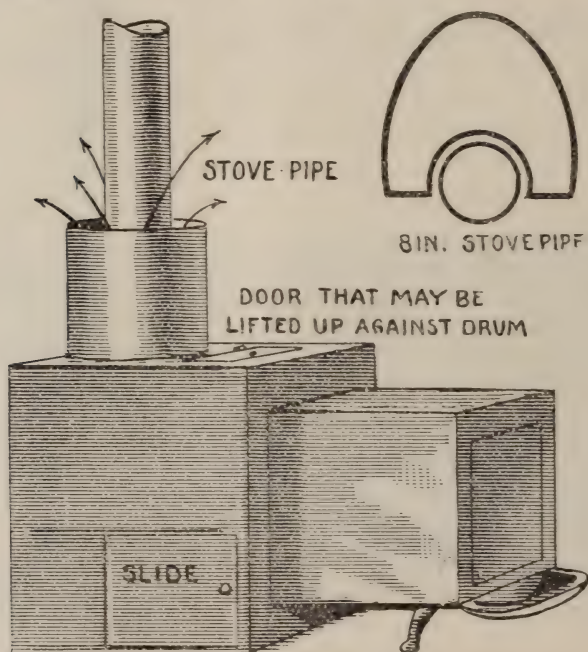
Dr. Loring's remark introduces the only other topic which I propose to take up in this paper, viz.:

¹ Dr. Bremner, Toronto, in the paper given before the Inspectors' Section, and published in the Proceedings of the Ontario Educational Association, 1894, pp. 198-201, shows how round shoulders, rotary lateral curvature of the spine, and lordosis are produced by defective seats and desks.

VENTILATION.

The following simple plan of heating and ventilating a room, using the old-fashioned box-stove as a heater, may be applied in either new or old one-room buildings. The principle consists in heating fresh air in a jacket constructed upon the back half of the stove and drawing off foul air at the floor through flues which obtain their draught in a drum lying upon the horizontal stove-pipe.

This appliance not only warms the room evenly and ventilates

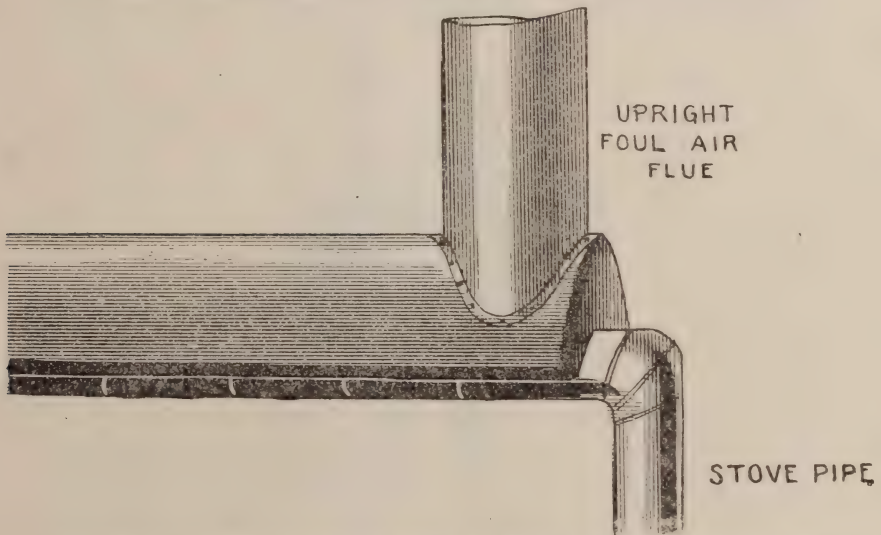


it, but, if the dampers and controls are properly employed, less fuel will be consumed than before the flues were put in.

The jacket to supply the warm air should be made to embrace the back half of the stove, leaving an air-passage of four or five inches on the sides and end, and to fit closely to the floor. Heavy galvanized iron should be used for the jacket (No. 22, at least), and the sides should be braced against the stove. The top of the jacket may be left open or wire-screened, but it is found to give a warmer, stronger current if it is continued into a drum around the lowest length of the stove-pipe, as shown in the diagram. A slide

or door may be put in the top or front, but one must be made on the side, or better, one on each side, as large as practicable, to be left open at night when the fresh-air supply is shut off, or when children come in with wet, cold feet and need access to all the heat-radiating surface they can get.

Pure out-door air is conducted into the jacket by flues usually made by boxing in two of the floor-joists to an opening under the stove. A slide of galvanized iron is used to shut off when desired, or to control the quantity of fresh air admitted into the jacket. If a pair of joists are boxed through from side to side of the

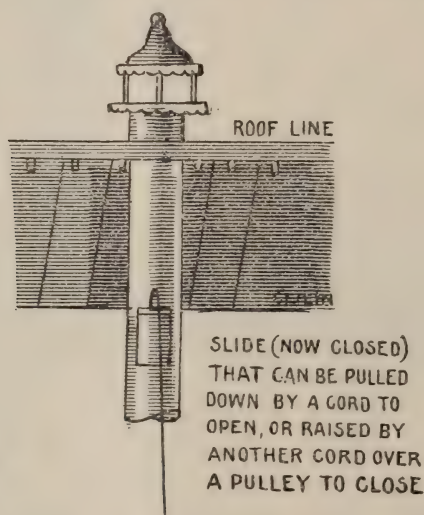


school-house, an interceptor must be placed in the middle of the passage to divert the current into the jacket. All wooden parts below the stove must be lined with tin or zinc. No part of air space in jacket or inlet flues should have less than 200 square inches in area of cross-section; outlet-flues must be larger to allow for expansion of air in heating.

To get force to draw the foul air out of the room, an inverted U-shaped drum is made to lie along the upper side of the horizontal stove-pipe. This drum should be laid on the hottest part of pipe, and from it a flue be carried up through the ceiling and out through the roof, as shown in the plan. The foul air is taken to the U-drum by a pair of flues, one on each side, carried from near the floor up along the wall and horizontally across to the drum. A convenient shape for the upright part of the flues is oblong, 24 x 6

inches, the part carried across may be circular, 13 or 14 inches in diameter, and an interceptor should be placed in the U-drum between the entrances of the horizontal flues. Each upright flue should have a (ratchet) damper to close it at night and to control the draught during the day. A slide in the central upright flue at the ceiling may be opened when the room becomes too warm, or used as a summer ventilator. The foul-air flues throughout may be made of lighter iron (No. 26 or 28) than the jacket, and should have an area in cross-section of two square feet.

In new school-houses a ventilating flue of say one square foot may be provided for in the chimney. In that case smaller flues

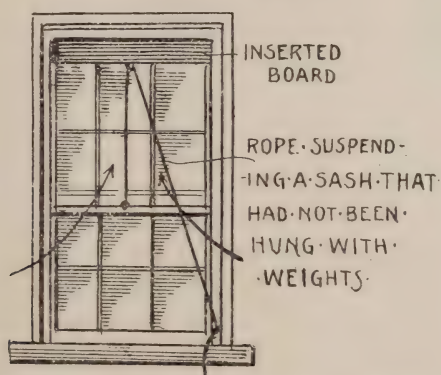


on the sides will do, say 6 x 15, or 20 inches each, and these may be placed nearly opposite the elbow of the stove-pipe and the central upright put at the opposite end from that shown in the plan.

All openings leading to the outside should be kept closed when the school-room is not occupied, and at such times the slide on the side of the jacket should remain open.

A ventilating appliance like, or nearly like, that described above has been put in several school-houses in my division. The cost has varied from \$38 to \$60. When the details are properly constructed and the slides and dampers controlled according to their intention, not only is the room ventilated, but every part of it is evenly warmed; the jacket screens those pupils seated near

the stove from being blistered. The quality of the heat is partly conveyed, as in the case of a hot-air furnace, and partly radiant from the uncovered part of the stove and from the stove-pipes, the heating is therefore more healthful than that from a hot-air furnace alone. It takes less fuel than the latter because no heat is lost in the basement. One of the trustees of Rosemond school told me they had burned but little more than half as much wood in the two winters since the ventilating apparatus was put



in as they had burned in the two preceding winters. Where fuel is expensive, it pays to provide double windows.

A ventilated school-room cannot be comfortably heated if open spaces under the doors, or cracks in the floor, or loose wainscoting tacked over unplastered brick permit frosty draughts to enter and sweep along the floor to the mouths of the flues. A room ventilated by flues cannot be made too close against the entrance of the frosty wind except by the flues entering the hot-air chamber.

(TO BE CONTINUED.)

Cost of Food in Different Countries.

According to some recent statistics on the cost of living, an Englishman spends on an average \$48 a year for food ; a Frenchman, \$47 ; a German, \$42 ; a Spaniard, \$33 ; an Italian, \$24 ; and a Russian, \$23. Of meat, the Englishman eats 109 pounds a year ; the Frenchman, 87 ; the German, 64 ; the Italian, 26 ; and the Russian, 51. Of bread, the Englishman consumes 380 pounds ; the Frenchman, 540 ; the German, 560 ; the Spaniard, 480 ; the Italian, 400 ; and the Russian, 635.

Physical Culture as a Therapeutic Agent.

BY C. E. BLACK, M.D.,

Jacksonville, Ill.

THIS subject has not been selected with the expectation of being able to present anything new or original, but to state a few well-known physiological facts, and from these facts to make deductions which seem naturally to follow, if our physiology is correct. If the importance of physical exercise in maintaining good health can be fully presented, the object of this paper will be accomplished. So many so-called systems have been advertised and worked as cure-alls that the people have come to distrust them.

It behooves the medical profession to become an educator in the importance of physical exercise to develop health. Even those who have given some attention to the value of physical exercise as a therapeutic agent often have very indefinite ideas of how to prescribe it, and have no system which is readily adapted to the various demands. No good result can come from the careless following the careless advice. The physician should be able to as readily prescribe exercise for those needing it as to prescribe drugs. Of course, exercise can no more replace drugs and other therapeutic agents in the treatment of diseases than can drugs alone be relied upon to cure every ailment.

Many of the ills of humanity can come from faulty physical development due to neglected or perverted physical exercise. A discussion of the general question of physical exercise with a consideration of its value as a therapeutic agent should be profitable. We are frequently consulted by patients whose physique is unable to bear the continued strain to which it is subjected by their habits and occupations. Another class of patients is that in which the physique receives so little use in exercise that there is physical degeneration, and the vital organs are not receiving sufficient stimulation.

In ancient Greece the training of the body was an important part of the education of every youth. The result of the physical education was plainly visible in the whole nation, in which symmetry and beauty of physique were the rule rather than the ex-

ception. Although the primary object of this training was for military purposes, still the Greeks fully recognized a therapeutic value in systematic physical exercise, as is shown by their division of gymnastics into (1) *gymnastica militaria* and (2) *gymnastica medica*. As soon as the regular work in the gymnasia gave way to effeminate manners, the hardy vigor of the Greek life began to decline and the nation to lose its power.

Rome imitated the gymnasia of the Greeks, but did not perfect them as a part of her educational system. France had the tournaments, which were much patronized at one time, but declined with chivalry. Modern gymnastics had their beginning in the latter part of the eighteenth century in Germany, and were considerably systematized in the early part of the present century by one Jahn. The first gymnasium was opened in this country at Northampton, Mass., by Dr. Beck, in 1825. The modern gymnasium, with its improved and delicately graduated apparatus, offers one of the most useful methods of prescribing to our patients regular graduated and systematic exercise.

The following definition of exercise given by DuBois Reymond, Professor of Physiology in the University of Berlin, will help us better to comprehend what is meant by physical exercise. He says, "By exercise we commonly understand the frequent repetition of more or less complicated action of the body with the co-operation of the mind, or of an action of the mind alone, for the purpose of being able to perform it better."

There is one element of exercise which is not expressed in this definition. All true exercise must overcome some resistance,—that is, it must have in view the accomplishment of something more than simply the movement of the frame to which the muscles are attached. We may have movement without exercise in its scientific sense. The muscles will not be developed by movements which do not overcome some resistance. The highest endowment of the human economy is to labor,—to overcome the natural resistance which nature has put in man's pathway. It is only as we overcome resistance that we are developed. Exercise is a form of voluntary labor. With the addition of the element of resistance this definition covers all kinds of exercises both physical and mental. While we have to do in this paper with physical exercise, yet the two are so intimately related that it is impossible to separate them, and a definition to be comprehended must consider both.

It will be necessary to give some attention to the physiology of exercise, and in order to do this the general anatomical and physiological characteristics of the muscles and nerves must be briefly reviewed.

The muscles of the human body are of two kinds,—involuntary or unstriped and the voluntary or striped. The involuntary muscles are not definitely under the control of the will and are found in those parts which act independently of the will power. They consist of “elongated, spindle-shaped, nucleated fibre-cells, which, in their perfect form, are flat, from about 1-4500 to 1-3500 of an inch in length, very clear, granular, and brittle, so that where they break they often have abruptly rounded or square extremities. Each muscle cell consists of a fine sheath, probably elastic, of a central bundle of fibrils representing the contractile substance, and of an oblong nucleus which includes within a membrane a fine net-work anastomosing at the poles of the nucleus with the contractile fibrils. The ends of the fibres are usually single, sometimes divided. Between the fibres is an albuminous cementing material in which are found connective-tissue corpuscles and a few fibres. The perimesium is the fibrous connective tissue surrounding and separating the bundles of the muscle cells.” (Kirke.)

“The voluntary muscles consist of bundles of fibres called fasciculi, enclosed in a sheath of connective tissue. Each muscular fibre is thus constructed: Externally is a fine, transparent, structureless membrane called the sarcolemma, which in the form of a tubular investing sheath forms the outer wall of the fibre and is filled up with contractile material of which the fibre is chiefly composed. Sometimes, from its comparative toughness, the sarcolemma will remain untorn, when by extension the contained part can be broken and its presence is in this way best demonstrated. The fibres, which are cylindrical or prismatic, with an average diameter of about 1-500 of an inch, are of a pale yellow color, and apparently marked by fine striæ which pass transversely around them, in slightly-curved or wholly parallel lines. Each fibre is found to consist of broad dim bands of highly refractive substance representing the contractile portion of the muscle-fibre.” (Kirke.)

The muscular fibres vary in length, but many fibres are necessary to constitute the length of most muscles. The fibres are joined together in bundles or fasciculi very much like rope made of

a large number of strings of sausages (Hartwell), to use a crude illustration. Each muscle terminates in a tough, inelastic fibrous band, by which it is attached to the bone. The thicker parts of the muscle contain the larger number of parallel fibres.

The muscles are freely supplied with blood-vessels and nerves.

The vessels are distributed over the muscular fibres as capillaries, which do not enter the fibre, but are spread out over them for the distribution of oxygen and other nutrient material for the building up of the muscle.

In a state of rest muscular fibres have a perfect elasticity and may be considerably stretched, but always return to a perfect normal position. They are always more or less on the stretch, for if they were lax when not in activity much of their power would be lost in making themselves taut before any work of moving the body frame was begun. It is estimated that a cubic centimetre of muscle is capable of exerting a force equal to moving a weight of about twenty pounds.

The nerves which are distributed to the muscles divide up minutely for distribution to the muscular fibres. Each muscle is supplied with both motor and sensory nerves. The nerves to the involuntary muscles are chiefly from the ganglionic or sympathetic system, and those to the voluntary muscles from the cerebro-spinal system.

The nervous system has two principal divisions, the cerebro-spinal and the sympathetic; and the nerve-fibres are of two varieties, the medullated or the white fibres, and the non-medullated or the gray fibres. In most nerves we find both bound up together, so that the motor and sensory impressions are conveyed by the same nerve, which consists of bundles of fibres. Each medullated fibre consists of a primitive sheath, the nucleated sheath of Schwann, a medullary sheath of white substance of Schwann, and an axis cylinder or axial fibre, which is made up of a large number of fibrillæ. The non-medullated nerves are much finer than the medullated, and there is an absence of white substance.

All nervous impressions have their origin or termination directly or indirectly in the central nervous system, which is composed of nerve-fibres and nerve-cells. The brain has both motor and sensory centres, which control the various actions and impressions for the whole body.

Expressed according to their function, nerves are either motor

or sensory. The motor nerves (efferent) convey impressions from the central system to the muscles, and the sensory nerves (afferent) convey impressions to the central system.

The human body has been appropriately called (Hartwell) a neuro-muscular machine for taking from the blood those parts which will build up the tissue; to relieve the system of those waste products which are generated by tissue activity, and for converting the potential energy of muscle and nerve-cells into the energy of motion and stimulation and perception.

A muscle is not a simple organ, but is complex, being made up of a multitude of fibres, which are supplied with nerves and blood-vessels, all under the central nervous system.

Muscle is irritable, and responds to various stimuli. A muscle taken recently from the living body may be made to contract directly to a blow or other stimulus. The muscles of some of the cold-blooded animals, which have been the ones chiefly used in experiments, maintain their irritability for a considerable time after being removed from the body. In the body the nervous system is the natural stimulant by which the muscles are made to contract. It is the duty of the muscle to respond to the stimulus of the nervous system. The nervous system also has an irritability, and must respond to certain stimuli; but that response in a nerve is expressed in some other form than that of motion, as in pain or perception. In the cells of the central nerve-organ it is determined that a certain muscle or group of muscles must be set in motion, and that impression is conveyed by motor or efferent nerves to the muscle, which responds by contracting, and thus setting the frame-work of the part in motion. As soon as this motion is begun, the sensory nerve is stimulated and conveys at once to the central organ the information of what has been done by the muscle.

As soon as the muscle begins to act, the capillaries and small vessels supplying that muscle dilate so as to convey more oxygen and other nutriment to the muscle to strengthen and fit it for work and to take away the carbonic acid and other waste products. The heart's action is quickened in response to a greater demand for arterial blood, and the lungs are expanded by the demand for more rapid oxygenation of the blood and the throwing off of the carbonic acid. The skin, kidneys, and other organs also have greater demands made on them for the disposal of waste products.

Exercise not only develops the voluntary muscles, but as it

increases the demand for elimination of waste products and for more nutriment to build up and sustain the system, the involuntary muscles are brought into greater activity, and are thus developed.

Voluntary exercise is a necessary requirement for the healthful action of the organs of the body. Without exercise the heart's action becomes sluggish, the muscles lose their tone and become flabby; there is an accumulation of fat in all the tissues; the blood is not sufficiently oxidized; effete products which should be eliminated are allowed to remain in the system, and the whole system undergoes degeneration.

But so far our view has been confined to the mere physical side of a muscular act. Let us see what takes place in the nervous system. When a child is born we find branched cells in the fundamental portions of the nervous system, but a large part of that system is still rudimentary and undeveloped. How is this development stimulated? From what we know of the dependence of our progress on the use of our muscular system, it is no stretch of imagination to believe that if a new-born infant could be so bound down that it could make no use of its muscles, it would not develop, but would remain an idiot. In early life the larger part of the central nervous system consists of round cells and the cells slightly branched. As development goes on and the muscles are called more and more into activity by the cells of the brains, sending impressions over the motor nerves, the cells in the brain and spinal cord become more and more branched, and the nerves become more medullated,—that is, the nerve-cells and fibres develop with exercise, just as the muscle-cells are developed by exercise.

With muscular action repeated systematically and regularly, the muscle comes to respond more quickly and accurately to the nervous stimulus, and the nerve-cells come to deliver their stimuli, and the nerve-fibre to convey them more quickly and promptly.

The use of the muscles not only develops the size, consistence, and power of the muscles themselves, but also develops the central nervous system by the exercise of originating and sending those impulses which cause muscular contraction, and receiving those impressions which constitute a knowledge of what the muscular system is doing.

In order to raise a weight with the arm, the resistance of gravity must be overcome. The central nerve-organ perceives through the senses the size, form, and consistence of the weight

to be moved, and, by comparison of similar impressions received, determines the quality and quantity of the stimulus to be sent to the muscle. As soon as the muscle acts and the weight begins to be moved, the nervous system conveys to the brain the exact data of what has been accomplished.

The following quotation from Dr. J. Crichton Browne, a well-known English authority on mental diseases and allied conditions, states plainly the physiological elements brought into use by exercise :

“When a movement is willed, a current is sent forth from the brain, and the muscle contracts. But that is not all ; the instant that the muscle contracts, the sensory nerve takes up the tale, and accurate reports are conveyed to the brain of all that is going on at the scene of action. Nerves distributed to the muscle itself, to the skin covering it, to the joint which it moves, carry back to the supreme centre precise information as to the effects of its mandate, and the information thus received is carefully registered for future guidance. For just as there is a memory of sensory impressions, of the sights we have seen, and the sounds we have heard, so there is a memory of motor impressions, of the movements we have performed, and of the mode in which we have accomplished them. Thus the muscles, not only by the locomotion which they render possible, enormously widen the field from which our sense impressions are gathered, but also by the experiences which their own activities involve, expand our mental resources a thousand-fold. An analysis of our ideas at once reveals to us that we have few ideas that are of purely sensory origin ; revived optical impressions, which are properly limited to color, but ocular impressions combined with ideal ocular movements.

“Our idea of a circle is a combination of an ideal circular sweep of the eyeballs, or it may be of a tactile impression coinciding with an ideal circumduction of the arm, or the hand, or perhaps both of these factors combined. And so it is with our ideas of weight, distance, and resistance, which all involve sensory and motive factors, and to review in memory any such ideas is to revive both the sensory and the motor elements of their composition, and to repeat definitely in certain nerve-centres the processes which correspond with certain motor acts.

“Now the centres of motor ideation require to be exercised in order that they may be properly developed, and may contribute

usefully to mental processes ; and hence muscular training is likely to assume a more important and precise place in our educational systems of the future than it has hitherto done.

“ These facts that cerebral centres, never properly exercised, do not develop, and that, when once developed, they are not so liable to waste on the withdrawal of their appropriate stimuli, or when they are cut off from their natural activities, strongly inculcate the importance of educating every centre at its nascent period, and the danger of postponing education till the nascent period is over. A large district of the brain is made up of motor centres, and is concerned with motor ideas. The growth of this district is evidently to some extent dependent on muscular exercise, and if that is withdrawn at the growth period, the development of that district is arrested.

“ It is not only so, but that district is made up of a series of centres in relation with different groups of muscles, and each centre is dependent for its development upon the activity of its own group of muscles ; and the defective exercise of any group of muscles during the growth period of its own particular centre (the growth period in most of the motor centres have different starting-points) will result in the dwarfing of that centre, and a corresponding hiatus or general weakness must exist in the whole mental fabric.”

In this hasty review of the principal physiological processes in exercise, we get the main points in its importance to a healthy, vigorous, well-developed man. A well-rounded, systematically developed mind cannot be housed comfortably in an undeveloped and unhealthy body. On the other hand, a well-formed and properly trained body is conducive to an energetic and well-balanced mind.

What a revolution the introduction of physical education has wrought in our college men. It is this phase of the subject of physical exercise which has attracted most attention during the last few years. Much good is being accomplished by the establishment of well-equipped gymnasiums for systematic training of our boys and girls. Only a few generations ago the typical college man was pictured as an intellectual giant with a poorly-developed body, sallow complexion, and hollow eyes, showing the effect of hours of midnight toil in illy-ventilated apartments, and with no intermissions of out-door exercise. What a change do we see ! Now many people are afraid that our college men are

running to bodily development, and will graduate physical giants with heads poorly stocked with classics and science. A sober view of the situation will show all such fears groundless. Our colleges are simply returning to nature's plan of developing both body and mind, but neither at the expense of the other.

A broad and healthy intellect cannot be formed by continuous pursuit of one line of study, as language or science, to the exclusion of other branches. Neither can a symmetrical and healthy body be formed by keeping continually at one line of physical work. We often hear it said that all the physical exercise the boy and girl needs is to be put to work in the shop, or on the farm, or in the house. This advice has some favorable points, but it is not the way to get a thoroughly developed body. It is in this school of labor that most of our people get their physical training. Look at them. Take a position on the corner of some busy street, and watch the people as they pass. Select those you would consider well-developed, erect, of easy gait, and good carriage. You will wait long. Many will pass and few will be selected. You will see many with stiff joints, drooping shoulders, shambling, awkward gait, stooping and irregular walk, over-stepping, pigeon-breasted, hollow-breasted, and a hundred other imperfections which point out plainly that there has been no systematic effort at physical development. Yet the large majority of these people have been used to hard work from youth up.

Dr. Charles Roberts and Dr. Boulton, two English students of anthropometry, agree that the children and youth of the more favored classes, who have some systematic physical and mental training, are heavier, taller, and stronger than the children and youth of the artisan class, who must work from childhood, have very little general exercise, and whose surroundings and food are not conducive to bodily development.

Archibald Maclaren, in his work on "Physical Education," mentions a case in which growth has been stationary at five feet two and five-eighths inches, which, under systematic exercise, began at once to grow at a regular rate until at the age of 21 he was five feet six and a quarter inches in height. Other similar cases might be cited.

Almost all labor is one-sided and gives to the body a symmetrical development, or rather develops certain groups of muscles at the expense of others. Most of the trades develop the upper extremities and the upper part of the trunk, but do nothing

for the legs, while most out-door sports develop the legs and pelvis, but do little for the upper extremities.

As was stated at the beginning, very many ills of humanity are due to faulty development, which is brought about by neglected or perverted exercise, especially at the formative period of life. The Greeks recognized this fact when they named "*gymnastica medica*" as one division in their classification of gymnastics. As far as I have been able to learn, this class of gymnastics was entirely lost sight of until very recent times. It is left for the present generation to recognize gymnastics as a therapeutic agent, and to apply it to the many cases whose chief ailment is the lack of systematic physical exercise. Not that the gymnasium should be considered a cure-all, and applied at random to all cases. We should carefully examine our patients, and when we find a person suffering from insufficient exercise, over-exercise, or perverted exercise, they should be taken carefully in hand and proper exercise prescribed for them. The modern gymnasium is well adapted to the needs of the physician in prescribing regular exercise, and should become a part of his armamentarium. (There is no way in which exercise can be so nicely adapted to the needs of the individual as in a properly-equipped gymnasium.) Any set of muscles found deficient can be trained separately. Exercise can be adapted to one group of muscles after another until all the muscles of the body are systematically brought to a healthier tone, and enabled to easier and better perform their work of life.

No question so often presses for solution as to discover the cause of some persistent malady. Our greatest stumbling-blocks in diagnosis and treatment are the faulty habits of the individual, and our greatest difficulty is to enforce those "laws of nature which control alimentation and assimilation, and equalize vascularity in the organs." The American seems to believe "that for every physical ill there exists an antagonizing pill." The belief on the part of the American people that it is the duty and the sole province of the doctor to drug them on every and all occasions is a great obstacle in the way of a more rational practice of medicine than often comes under our observation, and makes it often difficult for the physician to prescribe the more practical and valuable plans of treatment which seek to correct the underlying cause of the malady rather than temporarily combat the more external manifestations. Even those who have given some attention to physical exercise as a therapeutic agent often have very

indefinite ideas of how to prescribe it, and have no system which is readily adapted to various demands.

The physician should be able to as readily prescribe exercise for those needing it as to prescribe drugs. It is of no value to say to a patient, "You do not take exercise enough," or, "You should walk in the open air every day," or, "You should go to a gymnasium and take regular exercise," or, "You should ride horseback." We had just as well tell a patient to take quinine, or take some calomel or any other remedy, without specifying the quantity, time of day, or frequency of the dose.

If a prescription is to be of any value to a patient, he must be told just how much, at what hours, and how frequently he is to take what has been prescribed. The directions must always be specific as to quantity to be taken, the hours at which to take it, and the frequency with which it is to be repeated, whether it is calomel or walks, quinine or horseback riding, alteratives or work in the gymnasium. The principle is the same. If our advice is to be of benefit to our patients, it must be specific as to every detail of time, place, and frequency of repetition.

The field for usefulness for exercise as a therapeutic agent is broad if it is properly prescribed. Many ills might easily be avoided by the use of systematic exercise in early life. Statistics of Amherst College show that under systematic exercise the sick-rate was reduced from three in the freshmen year to one in the senior year.

Authorities differ somewhat as to the amount of exercise required daily by a well-developed adult. It has been stated that a healthy adult of five feet six inches in height, and weighing 135 pounds to 140 pounds, should take an amount of physical exercise which would be equivalent to a walk of eight miles. This will at least serve as a basis on which to estimate the amount of exercise required for a given patient.

Not Afraid of Antikamnia.

"I would not hesitate to take fifteen grains of Antikamnia at a dose, and even repeat it every half hour if required. I am subject to severe attacks of neuralgic headaches, and I take big doses with no untoward effects." Dr. C. Alex. Garnsey, Batavia, Illinois.

From Hand to Mouth.

BY BENJAMIN LEE, M.D.,

Secretary of the State Board of Health of Pennsylvania.



THE fact that the usual method of communication of typhoid fever is through the medium of polluted drinking water or of milk which has become contaminated by polluted drinking water is so well established, it has led physicians and sanitarians, perhaps, to neglect too much the other possible sources of infection.

In the course of an interesting address, made by Professor W. T. Sedgewick, of Boston, Massachusetts, on the "Origin and Contamination of Typhoid Fever," at the Twenty-first Annual Meeting of the American Public Health Association, Chicago, Illinois, October 9, 1893, occurs the following passage bearing on the possibility of direct infection of food :

There is still a third class of epidemics investigated by the State Board of Health of Massachusetts to which I wish to invite special attention,—namely, those epidemics due to what I may call secondary infection. One of these is shown upon a diagram which I show you. You will see the location of the milk epidemic to which I have referred, which infected the best part of the city of Springfield. Please bear in mind that the typhoid fever was not in the filthy part of the city, but in the magnificent portion of the town, where the houses have fine lots, where every prospect pleases, and where only milk is infected. It is now of secondary infection epidemics of which I wish to speak.

I have here an example in the town of Palmer. There is a district called Duckville, which is a portion of the village of Bondsville. There appeared here, after the Springfield milk epidemic, an interesting outbreak of typhoid fever cases in the neighborhood of a well, which was located only thirty feet from the worst privies I ever saw. I saw houses grouped around the well, and the well was apparently in a terrible condition. On taking samples from it and examining them chemically and bacteriologically, we found absolutely no typhoid-fever bacilli, and hardly any germs of any kind. The water was seemingly remarkably well purified. From a chemical point of view, also, it was unobjectionable, because the well was a driven one, and the privies near by did not contaminate it. We found on tabulating the cases and making dates that there was a curious sequence in the cases. They did not come down as the cases in Springfield, with one blow, as if some poison was widely distributed to many houses at once ; nor did they come down as at Lowell. They came down, one on the first, two on the second, one on the ninth, one on the twelfth, two on the fourteenth, and so on for a month. We

found, in fact, a succession of cases. Beginning at number one, I traced the thing along until it spread to other portions of the village. In trying to find out the cause of this, I went into one of the houses of low grade in which the inmates were filthy in their habits. On one occasion I had a revelation: I found four people sick with typhoid fever in one room, and two in bed in an adjoining room. Those in the room were gathered around a table on which there was some food. Some in the prodromal stages were still sitting up. They were children, and would get off from the chair on which they were sitting, go out to the privy, and then come back, and without washing their fingers would stagger up to the table and finger a big piece of cake which lay on it. They would then nibble a little bit, leave the rest, and sluggishly walk back to their seats. Another child would get off its chair, or a child would come in from the outside, would go up to the same table, break off a piece of cake and eat it. There was no question about how the infection was spreading in a case like that. From case A something was left upon the cake, and from the cake it soon found an entrance into the alimentary canal of the next child. The children went from house to house, —they live pretty much together,—the food stands on the table from day to day, and they lived that kind of life in which the children eat food in common, and the food which went into the mouths of A, B, and C was fingered by D, E, and F, and it only required that D or E should have a case of typhoid fever to infect the others, one after another. We found, moreover, that the first case was unquestionably imported from a neighboring town, having been distributed in the way I have described. A large boarding-house, the occupants of which were using the well water all along, did not contain a single case of the disease; so I was forced to the conclusion that the well had nothing to do with it.

The most authentic instance, however, of this mode of propagation of the disease which has yet come to my knowledge—I say most authentic because all other possible sources of infection have been so carefully excluded—will be found in the following report of Sergeant W. G. Weaver, of the Ninth Regiment, N. G. P.

WILKESBARRE, PA., October 18, 1894.

DR. BENJAMIN LEE, Secretary State Board of Health.

DEAR DOCTOR: In reply to your favor of the 8th inst., I would say that I have carefully investigated the epidemic of typhoid fever in Company F, of the Ninth Regiment, which occurred after the return of the said regiment from the annual encampment at Gettysburg.

Dr. Stewart and I have sent a report through Dr. W. R. Longshore, the Surgeon-Major of the regiment, to Surgeon-General Read, embodying the chief features of this communication.

The encampment was held upon the historic battle-field of Gettysburg, on the ground upon which Pickett formed his line of battle, and over which he charged to the Union lines.

As is well known to many thousands of people who have visited the battle-ground, the location is healthy, the drainage good, and malarial influences are absent. The place is an ideal one for an encampment.

The water-supply was brought several miles through pipes, and I am informed it was filtered before leaving the distributing reservoir. The weather was pleasant, and the general sanitary conditions were good. So far as the Ninth Regiment was concerned there was practically no use for a hospital, the beds being unoccupied throughout the entire encampment. The entire National Guard of Pennsylvania, together with a battery and cavalry troop from the regular army were encamped upon the aforementioned fields, from August 11 to August 18, 1894. There were present therefore about 8000 men. What I have said about the absence of sickness in the Ninth Regiment applied equally well to all the other troops in the encampment. It was commented upon as an unusually healthy encampment. Nor did sickness subsequently develop among other regiments than the Ninth, nor in other companies of the Ninth than Company F.

Company F comprised fifty-three enlisted men. There occurred twenty-two cases of typhoid fever among persons who messed in this company. Among these were two persons who were not members of the company, but who messed with the enlisted men. One of these was a servant, and the other was a photographer from Wilkesbarre. Adding these two persons to the enlisted roll, we find the total number to be fifty-five. It will, therefore, be seen that just 40 per cent. of the persons who messed in Company F afterward contracted typhoid fever.

The members of this company had no food which differed from that supplied to the other companies, and, if we except two pails of water taken on at Reading on August 11, while on the way to camp, we may add that the water-supply was the same as that of the other troops. The water procured at Reading was delivered to the Reading Railroad Station by an employé of that company, and did not differ from the water used at that depot. But we have to add the interesting fact that while the commissioned officers drank of the water procured at Reading and escaped the disease, two persons who did not drink the water, but messed with Company F, contracted the disease. The commissioned officers did not mess with the enlisted men. *They had a separate mess and a separate servant.*

After a searching investigation, we find that a private named Seitz complained on Sunday, August 12, the next day after the arrival of the regiment at camp, of having a diarrhœa, and he was told by his captain to report to one of the surgeons for treatment. Instead of doing so he procured a bottle of Jamaica ginger from a comrade, and continued in a listless manner to discharge his camp duties. On the following day he was one of two of the whole regiment who fell out during inspection, showing he was in a weakened condition.

His first sergeant, noticing his incapacity for active duty, detailed him to duty at the mess-tent of the company. According to the concurrent testimony of himself and his officers, his duty consisted in handling the food and passing it to his comrades. He would, for instance, place the bread upon the plates and then distribute it to the enlisted men. He also dried the dishes. It was ascertained that during all the time he performed his duty he had a diarrhœa, which was aggravated by taking food of any kind. He was easily fatigued, and had more or less headache. This condition lasted until his return home on August 19. The following week he grew

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weaker, had much headache, a stiff neck, and general malaise. On August 25 he took his bed with a well-marked and *fully-developed* case of typhoid fever, where we found him on October 7.

The other twenty-one persons who contracted the disease took their beds between August 31 and September 5, the earliest case being nearly a week subsequent to that of Private Seitz. No cases developed after September 5.

It is clear to our mind that, notwithstanding the fact that Private Seitz never reported to the medical officers of the regiment for treatment, he was, nevertheless, a "walking case of typhoid fever," and that the germs which caused the subsequent cases were conveyed to the food from his unsterilized hands.

It is interesting to note the large proportion of the company who were susceptible to the typhoid germs. In the historic epidemic at Plymouth, Pa., only about 15 per cent. of those exposed to the contagion contracted the disease, while in Company F, 40 per cent. succumbed to the poison. There resulted three deaths.¹

It is certainly a very unusual mode of conveying the disease, but the case is so clear that it should serve as a warning at all future encampments. It should also enforce the lesson that persons waiting on typhoid patients should thoroughly disinfect their hands before taking food themselves or handling food intended for other persons.

I am, dear doctor, very truly yours, W. G. WEAVER.

WILKESBARRE, PA., October 29, 1894.

DEAR DOCTOR:

An interesting case illustrating the probable spread of typhoid fever through food occurred in the family of Captain Miers, of the Ninth Regiment. His boy accompanied him to camp, and was one of the twenty-two persons in Company F who contracted the disease after the return of the regiment from Gettysburg. The mother waited upon him, and also attended to her usual household duties. Subsequently three other cases developed in the family. The water used was from the usual water-supply of the city. It was impossible, therefore, to trace the contagion to drinking water. We are strongly of the belief, after interrogating Captain Miers, that the subsequent cases were caused by his wife, through the food which she handled. We think the case of sufficient importance to append to the foregoing report.

Very truly yours,

W. G. WEAVER.

The following report from the Secretary of the Board of Health of Titusville indicates to my mind direct infection of milk from the hands of the person in charge of the dairy rather than through the water-supply:

BOARD OF HEALTH OF TITUSVILLE, PA., October 26, 1894.

DR. BENJAMIN LEE, Secretary State Board of Health.

August 26, the first case of typhoid fever appeared in the city, and two days later two more cases. At this time I learned that a case of typhoid

¹ Since writing the above, another death has occurred.

fever existed on a dairy farm about a mile north of the city, and that these parties were taking milk from this dairy. I immediately stopped them from bringing any more milk into the city. Within the next two weeks we had thirty-eight cases in town, and every one of them had been using milk freely from this farm previously to the time I stopped it from being brought into the town. The following week we had six more cases reported, two of which were imported cases, being men who had been working away from home and had come home sick with it. The other four had been users of this milk. Since then we have had six more cases reported, making fifty cases up to date. Of these six cases two were imported, and the other four have occurred in families where the disease had already been existing from the use of this milk, and where the sanitary conditions were not what they ought to be, and the families had been very careless. Of this number, four have died. The first case on the dairy farm came there from Buffalo, N. Y. Shortly after she arrived home her sister came down with the disease, and a little later her brother. The mother was taking care of her daughter and the milk at the same time. She was very uncleanly in her personal habits, and no precautions were taken at that time with the stools.

The sanitary conditions of the premises at that time were good. Three cases existed on this farm, independent of those in the city. Two parties visiting here at that time who used some of that milk went home and came down with the disease, and a number of others in the town who had used the milk showed symptoms of it for a few days.

Yours respectfully,

W. G. JOHNSTON, Secretary.

I feel that this source of the disease should be emphasized in all instructions issued by sanitary authorities, and that physicians cannot be too explicit in their instructions to those who are classing typhoid cases with regard to the necessity of immediate disinfection of fæces, and of constant disinfection of the hands, both of the patients and of the owners, as well as the greatest care with regard to the utensils for food purposes used by the patient.

1532 PINE STREET, PHILADELPHIA.

Infected Houses Placarded.

In Bangor, in connection with cases of infectious diseases, "infected houses are placarded, the appropriate infectious disease circular is placed in the hands of the family, and the school-agent is notified to have children from the infected house kept from school, the public library is notified, and careful watch is kept of the case until recovery or death ensues. The infected houses are then cleansed and disinfected, and the children are then readmitted to the school when the attending physician says that it will do."

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PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward *THE ANNALS OF HYGIENE* for one year *free*.

Franklin's Air-Bath.

OXYGEN is the great natural purifier. Oxidation means purification; when an abundance of oxygen is allowed access to anything that is foul, in the sight of nature, it is only a question of time until that which has been naturally foul becomes naturally pure.

This is not only true of the interior of the body, but it applies equally as well to the exterior.

Have any of our readers ever stopped to reflect how infinitesimally small is the amount of air that will get access to the skin even during the longest lifetime; night and morning one set of clothing is *hurriedly* changed for the other, lest the contact of a little air with the body might produce "a cold."

Has not nature plainly indicated by the way in which she sends humanity into the world that it is her wish that the air should have access to the surface of the body?

It certainly would be just as easy for nature to start our little babies on their journey through life fully dressed in the wool of the sheep, as it is for her to envelop them in their own skin, but it is part of her design that this skin shall serve merely as a covering to the organs and parts beneath; to finish and perfect the beauty of humanity, and to serve as a most important organ in the maintenance of healthy life.

It must be ever remembered that the skin is one of the great scavengers of the human body, removing therefrom through its agency great quantities of dead and decaying organic matter that has played its part in the drama of life ; and it will be noted that if the garbage-carts of a city are not periodically cleansed, they will surely become very foul and offensive to both sight and smell ; that which happens to the cart of wood and iron will also happen to the delicate skin.

To the physiologist the skin of an unclean person is the most disgustingly filthy object conceivable, and we are sorry to say that



A NAKED TRUTH.

the skin of most human beings is so filthy, to believe which it will be only necessary for a person whose olfactory nerves are but moderately sensitive to enter a crowded assemblage of *average* individuals on a damp, murky day, when doors and windows are closed.

These few words have been written to demonstrate to those not already alive to the fact that a clean skin is a most necessary condition of health.

Many persons who bathe regularly in water have not yet

heard of "Franklin's air-bath," or if they have are certainly not alive to its importance. We would strongly urge the practice of this most valuable habit upon all, but in an especial manner do we commend it to mothers for their young children.

If, after seeing that the nursery is comfortably warmed to say 70° or 75° F., you will strip the little ones and allow them to play and romp and pose as "naked truths" for one or two hours daily, you will find that not only will this most important organ—the skin—be kept clean and pure and active, but also that the liability of the child to "take cold" will be greatly lessened.

We would be much pleased if those good mothers among our readers, who decide to act upon this suggestion, would have photographs taken of their little cherubs, and send them to us that we might publish a group of "Naked Truths" for the edification and further encouragement of our patrons.

"Uncle Sam" as a Sanitarian.

WITH all our unquestioned claims to greatness, we are sorry to say that our poor old Uncle, old only in the eyes of the caricaturist, cannot be called a first-class sanitarian.

He may be first in war, progressive in peace, and strongly enthroned in the hearts of his adopted countrymen from all parts of the world, but it is quite certain that he cannot lay claim to the same distinction as a sanitarian.

Uncle Sam is an incomparable teacher in the arts of money-making and dying, but, compared with his European relatives, he is but the merest tyro in the art of living.

A few years ago we were approaching the ascent to the so-called modern capitol of Rome (designed some 400 years ago by Michael Angelo) in the company of one of those thoroughly educated Irish gentlemen with whom association is a pleasure, and as we walked we were, as all of Uncle Sam's nephews do, enthusiastically descanting upon the greatness of our country.

This good-natured Irish giant courteously listened to our volubility until casting his eyes upon the Egyptian lions, out of whose mouths flows a constant stream of water, with a twinkle in his eye, asked us if we realized that "those lions had been continuously *spitting* since long before our country had been heard of"?

This polite rebuke was accepted in the spirit in which it was given, but for years it has been bearing fruit in our mind.

Great as is this country, as a community, we have produced and possessed very few men great as individuals, when we interpret the word great in its proper sense.

The great man is he who has control of himself rather than he who, sacrificing himself, has for the moment gained control of millions,—be it of men or of money.

Gladstone and Blaine: the two magnetic names of the two great-English speaking countries of this century; what a contrast; the former upon the eve of the success of his effort of his life voluntarily resigns the most illustrious position in the world, in deference to his own physical welfare; the latter, oblivious to his own welfare, passes out of existence a worn-out man, a victim of want of self-control, many years before there was any necessity for him to go.

Von Moltke, in Germany; Sherman, Sheridan, Grant, Hancock, in America; Von Moltke, at 70 years of age, commencing to earn a world-wide reputation that lasts him not only until his death at 92, but that will live forever in history; Sherman, the oldest of our generals, dead at an age but two years greater than that at which the great German general commenced his career of fame.

Germany conquers France; it is said that one man in every ten in France drinks absinthe, and it is a notorious fact that child-bearing is so unpopular in this country that governmental premiums have been offered to the parents of large families; Germany as a nation believes in and practises the teachings of hygiene; France as a nation does not: is there any relation between cause and effect in the physical superiority of Germany?

England holds its own, universally recognized as the leading power of the world, and nowhere is hygiene more popular.

"Uncle Sam" is a vigorous, pushing old man, just the sort of a man that is needed in all new and unenveloped countries; but he is in vulgar parlance a little "*too fresh*;" he can tell us how to work, how to get rich, and how to die, but, we fear, that he does not know how to enjoy himself, nor how to properly instruct his nephews and his nieces, his sisters, cousins, and his aunts, in order that they may get the greatest measure of satisfaction out of the lives that they can live but once. Seriously speaking, we are old enough in this country to warrant us in com-

mencing to think of something beyond mere national development ; we are commencing to develop an aristocracy of wealth, but we have not yet commenced to emulate our European brethren in an aristocracy of "*common sense*."

The progress that has been made in this country during the past 100 years has certainly been marvellous, and as a nation we have reason to congratulate ourselves thereon ; but, in the fulness of our self-gratulations, it does not behoove us to forget that in the long history of the world many other nations have done just as much if not more, and that as they have advanced from a stage of pristine barbarity into that of completed greatness, the finishing touch has been given by the goddess Hygiea.

"*Uncle Sam*" is no longer in his *teens* ; he has reached an age of maturity in which the civilization of hygiene ought to have a conspicuous place in his thoughts, but it is hard for an old man to change his life-long habits, unless impelled thereto by the earnest pleadings of those near and dear to him.

Therefore does it behoove the rising generation of young Americans to corner their dear old uncle, and ask him to instruct them in the "*common-sense*" methods of individual life that have in the past crowned the civilization of the greatest nations of the world.

The Beneficence of Bright's Disease.

WHILE it is a very common mistake for the victim of any chronic organic disease to regard himself as doomed to early death, this is particularly true of the victims of "Bright's disease." We are quite sure that there are very few persons more than 45 years of age who have not some organic disorder, more or less advanced, yet in the majority of cases the presence of such disease is not only not an inconvenience, but it is absolutely unrecognized.

The victim of any chronic organic disease is an organism some part of which is weaker than the rest, and since the strength of a chain is to be found in its weakest link, so the strength of a human being is to be found in his weakest part, and if his everyday life is regulated in accordance with the average of his strength, and in consideration of the weakness of the disordered part, he need have but little fear of an early fatal result. While, as we have said, this is true of all organic disease, it is, in an especial

manner, true of "Bright's disease." This thought has been suggested to us by reading recently in the papers that, owing to his affiliation with the new Czar of Russia the Prince of Wales is destined to become a potent factor in European politics. It is now some years since it was announced to the world that the Prince was a victim of "Bright's disease," and at the time we published an editorial congratulating him upon this fact, because, as we argued, he had reached the age at which it was but reasonable to expect that he would develop some organic disorder, and that since this proved to be "Bright's disease," he was a lucky man, in so much that if he would only divest himself of fear, and regulate his life in accord with this recognized weakness, there was no occasion for anxiety.

Subsequent events would seem to have justified the opinion that we then expressed.

The Shut-In Society.

WE have recently noticed the advertisement of a proposed new journal which is to be called *The Open Window*; it is to be published by an organization with the queer title of "The Shut-In Society;" and according to the prospectus, it is designed to be the invalid's friend, comfort, and means of communication. We do not altogether understand the nature of this proposed publication; whether the announcement is made in jest, or in earnest, but we do know that "an open window" is, unquestionably the greatest friend, the greatest comfort, and the greatest means of restoration to health that can be given to the great "Shut-In Society" that consists of 500,000,000 human beings. In his endeavor to describe the impression made upon him, when gazing upon an assemblage of 50,000 human beings gathered together in Saint Peter's church in Rome, on the occasion of the recent jubilee of the Pope, F. Marion Crawford, the novelist (in Don Orsino), while admitting that there is something grand in any great assembly of animals belonging to the same race, yet argues that a compact herd of fifty or sixty thousand lions would be an appalling vision, beside which a like multitude of human beings would sink into insignificance.

Is it not a fact that one single individual lion, or tiger, or elephant, or even one monstrously ugly hippopotamus, is, in reality, more imposing than one individual human being. It is not alone the rarity of the sight that keeps fixed upon one of these

magnificent animals the human gaze ; no, it is the instinctive, if not recognized, sense of physical inferiority that lends to the wild beast of the forest such a captivating influence over the mental superiority of man. Apparently regardless of it as we are, yet there is nothing that we so much admire in others as outward evidences of the perfection of health and strength, and but rarely do we find, in the human animal, such perfection of physical health as is everywhere the rule among brute creation in a *state of nature*.

We must not forget that the lion and the tiger do not belong to the "Shut-In Society ;" in fact, we feel a sense of satisfaction as we calmly contemplate the fact that most *so-called* civilized persons will call, and have called, such as we are *cranks* ; because we know that the popular idea is that *majorities* must be right, and recent statistical evidence tells us that it is only the minority of human beings that belong to the "Shut-In Society."

We cannot close this editorial without brief reference to a thought that has long been in our mind as evidence of the *unnatural* customs of civilization ; how common it is to hear a child ask of its parents permission to go *out-of-doors* ; the cub never does this ; the cub does not belong to the "Shut-In Society ;" would it not seem, to those who realize the value of fresh air, that it would be much more sensible for the child to ask permission to go *in-doors*.

Put these few thoughts into your mental stomach, digest them and assimilate the product ; it may possibly cause a few resignations from the "Shut-In Society."

Muscular and Vital Strength.

THE recent deaths, close together, of two noted men, reminds us to again call attention to what we consider a vital question in connection with physical culture. The gigantic Czar of Russia, capable of prodigious feats of *muscular* strength, passes out of human existence long before the age at which the mentally delightful, but physically insignificant, *dear old* Dr. Oliver Wendell Holmes ceased to be a factor in the happiness of every one who had ever heard of him. It was one of the wittiest and pithiest of this ever clever man's sayings that "It is better to be eighty years *young* than forty years *old*." In his every-day life Dr. Holmes exemplified the wisdom of this saying, and the

eighty-four years of human existence which this delicate boy and frail young man secured for himself demonstrates in clarion tones that he thoroughly understood the system of physical culture that is conducive to health and longevity.

Of course, we are fully alive to the fact that in these days of passion for excessive muscular strength there will be many who would regard with aversion the prospect of leading such a calm, placid, comparatively speaking, uneventful (from a physical point of view) life as that of the lamented *autocrat*; we are fully aware that there are many, very many, who would prefer to be a "Sullivan" or a "Corbett" rather than to be the President of the United States, and we recognize the fitness of this diversity of choice as a potent factor in the progress of the world; we even go so far as to see great good in modern pugilism, since it has been an undoubted factor in the popularization of physical culture; but we feel that it should be very clearly made evident that muscular strength does not necessarily mean vital strength, while, in reality, the *excessive* cultivation of the former will generally result in a deterioration of the latter.

While we are quite sure that the predominant idea in the mind of every sane person is the acquisition of health and long life, we can yet understand that there are many young people who in the possession already of a degree of health that would make, to them, the possibility of disease and death something never to be considered, that to such persons the acquisition of superior muscular strength would seem to be the only object in life worthy of effort.

A little later on they will think otherwise, and will probably conclude, with the venerable President Patton, of Princeton, that while they may not need the mammoth muscles that they have secured by early *violent* exercise, that they will have daily and hourly use for their stomachs, and that it would have been better, as this octogenarian now realizes, if they had given more attention to this important organ in early life.

Be this as it may, there is one thing certain, the muscles are the organs of animal life; the internal organs are the organs of vital life; a person whose internal organs are sound and well cared for is capable of a long, healthy life of usefulness, even though his muscles may be so weak that he would be capable of little muscular effort.

The popular idea is that muscular exercise is conducive to

vital health, and to a certain point this is true ; but the popular idea runs on to a dangerous conclusion that the greater the measure of muscular development the greater the measure of vital strength. This is positively erroneous, and it is the misapprehension that exists in this connection that explains why the daily papers so frequently publish reports of the sudden and premature deaths of noted athletes.

Dr. Holmes's physical inferiority did not shorten his life ; Alexander III.'s marvellous physical supremacy did not lengthen his.

We are alive to the fact that " One swallow does not make a summer," and we are opposed to the delusive practice of generalizing from individual cases, but we also know that the late Czar of Russia and the late Boston physician stand as the representatives of the two types of physical culture that we would impress upon our readers, and we, therefore, use them in a generalizing way because we are confident that the course of observation which this editorial will suggest to our readers will result in convincing them that our deductions are correct.

The Significance of Hunger.

A FEW days ago at a hotel we saw one of the old-time merchants of Philadelphia, a man so old that his one-time associates still left on earth were very few, yet still a man whose mental and physical vigor is more than a match for that of a score of the modern, fashionable *dudes* of to-day. While this splendid old gentleman was a yearly resident at this hotel, we noted during the week of our stay that he was comparatively seldom seen in the dining-room ; the fact that fashion and custom ordains three meals a day did not seem to have any attraction for or coercive force upon this venerable old gentleman. A little conversation with the head waiter elicited the information that this old man was accustomed to eat only when he was hungry ; he will come in some morning, said the waiter, and eagerly devour a good-sized sirloin steak, then, perhaps, we will not see him for twenty-four hours.

This practical observation, so exactly coinciding with our firm conviction of what is right, and with the teachings of those who are competent to speak upon the subject, made a deep impression. There is no doubt but that the majority of human

beings are guided and controlled by custom and impulse, and, as we have so frequently said, these two mentors are not reliable guides. Custom has ordained that we should sit down three times daily to eat, and the majority of us do so whether we are hungry or not ; and the very great majority of us do not fail to die long before we ought to do so, and but few of us know, and still fewer will be ready to believe when we tell them, that the unneeded consumption of food has probably caused more disease and premature deaths than any other single cause.

Of course, it is impossible in the course of an editorial to meet the requirements of each one of the 1,500,000,000 persons in the world ; we can only write average conclusions for the average individual, from which each person must deduce that which seems applicable to his own personality.

The sensation of hunger is the demand of the body at large for that which it requires, and in the average healthy person this sensation will be present when the body requires food, and it will be absent when the body has sufficient for its purposes.

There is no uncertain ring ; nothing equivocal about this assertion, yet it is undoubtedly true. Physiologically considered, the life of a human being is maintained by certain molecular changes that take place in the composition of the food that he eats ; that which he avoids as waste contains identically the same *elements* as that which he ingested as food, and his *life*, with all that the word implies, has been simply the result of the disorganization of the elements of his food, from the combinations in which it has entered his system into others.

There is an intuitive knowledge, so to speak, on the part of the body as to just how much food is requisite in each particular case for the maintenance of healthy life, and if left to itself the healthy body will make its needs known by causing the sensation of hunger.

Understanding, as we do, that life is dependent upon molecular change, it will only be necessary to state that the rapidity of this molecular change bears a direct relation to the rapidity of the voluntary vital movements for us to understand that the metamorphosis of tissue will be relatively rapid in some and less so in others. In the person who *truly lives*,—that is to say, in one whose physical and mental life is constantly in motion,—the utilization of nutriment will be much more rapid, and the demand for it much more frequent than in one who leads, so to speak, a vegetative existence.

Following out this thought to its logical conclusion, it must be clearly evident that the habit of eating, because the hour which custom has decreed as the hour for eating, regardless of whether or not the system has made manifest its requirement for food, is to put it mildly, physiologically non-sensible. Of course, we do not expect to revolutionize society (and it is with feelings akin to pity that we feel called upon to sort of apologize for asking human beings to display evidences of common sense), but, at the same time, we are quite confident that if our readers will eat only when they are hungry, caring not at what hour of the day or night this sensation may become manifest, they will in the long run bear us out in the correctness of this idea.

The Boyhood that Predicts Future Greatness.

THE idea of *compelling* children to be educated seems to have such a strong hold upon the parental mind of to-day, and we have met so little encouragement in our oft-repeated assertion that it is not the boys who are the best students at school who make in after-life the greatest men ; we have found, we say, so little sympathy with this *idea*, which we *know* to be a *fact*, that we almost hesitate ever to speak or to write upon the subject. But we are again irresistibly impelled to advert to the subject by the perusal of an article in *Macmillan's Magazine*, by Mr. C. H. Firth, upon the great Lord Oliver Cromwell, wherein we find the following : " He learnt little at Cambridge, and was more famous for his exercises in the fields than the schools, being one of the chief match-makers and players of foot-ball, cudgels, or any other boisterous sport or game. He was soon cloyed with studies, delighting more in horses and in pastimes abroad in the fields." Realizing as we do that our idea is not in accord with the spirit of the age, we will do no more than ask our subscribers, when reading the biographies of men great in any walk of life, to make a note of those who are recorded as brilliant students in their youthful days, not forgetting at the same time to do the same for those who are described as having been more distinguished in the field than in the school ; and to honestly say whether the experience of their reading does not coincide with our own, that it is but rarely that the hard-working, exemplary, honor-taking student becomes in after-life the leader of men. This is merely a suggestion ; we will not argue the point ; as we have already said, we realize that we

will have few sympathizers in our idea that savors of a want of appreciation of the benefits of youthful education; at the same time we are quite confident that our idea is correct, and equally so that a series of observations such as we have suggested will make this fact clear to our readers.

Locking the Stable-Door.

A VERY dear friend of ours, who was at one time a splendid specimen of physical health, descended from a long-lived ancestry, and himself, the strongest son of a very strong father and mother, died at 40 years of age; we say he *died*, because we must recognize the properties that govern polite language; though, if divested of all unnecessary word adornment, we would say that he committed suicide. It was, to him, an unconscious suicide, so to speak, because in suicide, as the word is understood, there must be a consciousness on the part of the individual that he is by his own hand destroying himself.

This man died at 40 years of age when he should have lived forty years longer, because he neglected all the rules of health and long life; but, in extenuation of the personal criminality of his act, it must be admitted that he was not familiar with these laws, and that his life was guided solely by the exuberance of his splendid health and the physical spirits born thereof; the time came when, owing to his methods of life, his health failed, as is always the case when a well-formed, well-born, well-bred man of forty suddenly breaks down.

When about 36 years of age THE ANNALS OF HYGIENE was brought to the notice of this man,—his mind was then commencing to participate in his general bodily weakness; he was ready, willing, and anxious to lock the stable-door, but the horse was gone.

His health was now irretrievably ruined, and it was only a question as to how long he could avoid the final inevitable ending. Reading this journal, he now became thoroughly alive to the fact that he had been for years *unconsciously* committing suicide, and in the desperation born of his firm conviction that this knowledge had been derived too late to be of any use and sadly persuaded of what might have been had he sooner been familiar with the laws of hygiene, he spent the last remaining days of his life in writing

to his old-time personal friends urging them not only to subscribe for this journal, but to *read* it and practise its teachings ; and, as time went on, and this once strong intellect approached still closer to the end of its human existence, this man confided to his wife his earnest wish that while he had no thought for flowers or decorations of any kind, that serve ordinarily as evidences of the desire for ostentation on the part of those that give and those that receive, he had only one request to make, and that was that a copy of THE ANNALS OF HYGIENE should be placed under his head in his coffin.

Those of our readers and those who may be told by them of this editorial will say that this man was a crank ; but, as we have intimated in the first part of our article, he was in his prime, undoubtedly above the average of humanity in intellectual vigor, and like the average of humanity he failed to properly appreciate this fact and ruined himself thereby.

The last conscious act of this man was the direction of wrappers for this journal in the early days of its existence. The reflections forced upon the mind of the editor by the contemplation of this one case, which has its hundreds of thousands of parallels, causes him to wonder why it is that so few human beings, though always ready to lock the stable-door *after* the horse is gone, failed to do so in time to prevent the loss of this inestimable and irreplaceable possession.

In a recently-heard funeral oration, the minister very wisely said, "That we are all born to die," and that the only way to learn how to die right is to know how to live right, and that he who lives in accord with the teachings of the laws of nature and of nature's God will always live, prepared for that death which will come *only* when, according to the laws of nature as applied to his individual case, it is INEVITABLE.

Therefore let us beg that our readers will not wait until the horse has been stolen to lock the stable-door.

Take a Vacation.

Dr. Alexander Stone says, " Doctor, whatever you do, do not forget to take your vacation. I can assure you that you will be able to do more work, better work, make more money, enjoy life fuller, and live longer, if you work eleven months in the year, than you would if you labored for twelve."



Preventable Deaths.

A statistician of Moscow has estimated, from a study of the death returns of the states of Europe, that at least 40 per cent. of the inhabitants of that portion of the world die of preventable infectious diseases.

The Elementary Schools of Rome.

A feature of the elementary schools of Rome is that each building has two easy and roomy staircases, one for ascending and the other for descending, thus obviating the meeting and crowding of groups of pupils going in opposite directions.

Cooking Potatoes.

Dr. Letheby, the eminent English authority on foods, by a series of careful examinations found that when potatoes were cooked without removing the skins, the loss of nutritive material was but about 3 per cent., against 14 per cent. when the skins were removed before boiling,—a very wasteful process. Hence baked potatoes are not only more palatable but also evidently more nutritious than boiled potatoes in either case.—*Ex.*

The Antiquity of Play.

As play is but the natural outgrowth of the child's inborn love for activity, it is as old as mankind itself. The innocent games of the children of to-day, those which they enjoy—and practise most, were all known to children thousands, thousands of years ago. In the tombs of the palisade-builders that hold the earthly remains of children were found the rattle, made from unburnt clay. Homer and Pindar tell us of girls playing with dolls and boys trundling the hoop. The Northman's child found delight in the throwing and catching of jack-stones, which he gathered at the shore.—*Mind and Body.*

Another Foe to Malaria.

The anacharis alsinastrum, a water plant originally from Canada, but now naturalized in Europe, is said to destroy malarial germs. It is something of a nuisance, as it grows very rapidly, and, like its coadjutor, the eucalyptus, has a distinguished odor.

Why Consumptives Should Not Marry.

Of consumptives who become pregnant it is probable that 25 per cent. *will die* within a year from their delivery. Across the water 64 per cent. *have* died within that time. Of the children 13 per cent. will perish during the first year, but 50 per cent. will attain middle life *here*, while *there* only $37\frac{1}{2}$ per cent. of such children maintained good health, 62 per cent. became scrofulous, and 23 per cent. died of tuberculosis alone before attaining their seventh year.—*R. I. Medical Science Monthly*.

Psychic Effects of Weather.

J. S. Lemon notices the very great influence of weather on the health and temperament, and through them on the customs and habits of men of all ages. This is reflected in the salutations of all nations, in their religious ideas, particularly in their conceptions of the future life, and a thousand petty details of everyday existence. It affects even crime. Suicide is known to depend largely upon the weather, and it has been calculated that in India 48 per cent. of certain crimes disappear when hot weather gives place to cold. The health of idiots and those afflicted with acute mania is especially dependent upon weather, and its effect on the nervous system is such that many persons can anticipate weather changes from their own feelings. Accidents in factories are said to be much more frequent in bad weather than in good, and physiological phenomena like knee-jerk seem to be dependent on it in some measure. Its effect on the appetite is well known, and tea-tasters, who have cultivated the sense of taste till it has become almost abnormal, say that in good weather this sense is more delicate than in bad weather. No systematic study of all these facts and relations has yet been made, but such a study would doubtless well repay the investigator.—*American Journal of Psychology*.

The Greatest Consultation in History.

The veracious daily press states that the mother-in-law of the Mikado of Japan has recently been ill. She was attended by 423 physicians, but in spite of that has pulled through. The 423 medical men hadn't much to say as to the cause of the lady's illness, but a Buddhist priest of ingenious mind declared that it was owing to the introduction of railroads. His logic was simple. Before there were railroads she was well ; after there were railroads she was ill. What could be more clear than the conclusion he drew ?

An Official Utterance on Cremation.

The Section on State Hygiene (of the Eighth International Congress of Hygiene recently held at Vienna), which was presided over by Professor Kratter, of Graz, formulated the following unanimous resolutions with reference to cremation :

(1) The least dangerous and most rapid, and at the same time cheapest, method of disposal of dead bodies is cremation.

(2) Cremation is the best substitute for suitable cemeteries where these are wanting.

(3) Cremation is of the greatest importance for the welfare of peoples in times of epidemics.

(4) The governments of the various countries must be invited to permit of a facultative legal cremation, and thus provide for an excellent means of prevention against epidemics.

Longevity in Russia.

In the province of Kieff, during 1893, there were fourteen deaths of persons over 100 years of age. In the city of Kieff one man died aged 110 years, while within the suburban circle two women died, aged respectively, 102 and 104 years. In Berditcheff two men reached the ages of 101 and 114 years respectively. In Vassilkoff another died in his one hundred and fifteenth year. In the same district there died a woman aged 105 ; in Svenigorodka, a man of 110 years ; in Tarastscha, another 115 ; in Uman, two men, aged respectively 106 and 102 years ; in Radomytzel, two, aged respectively 103 and 107 ; and, lastly, a man of 105 years died at Tcherkassy. The united ages of the fourteen persons amounted to 1489 years. A man is still living in Saratoff who has already celebrated 126 birthdays.

Tranquillity vs. Indigestion.

Rev. H. W. Beecher once said, "I have known men who prayed for a good temper in vain until their physician prescribed eating so much meat; for they could not endure such stimulation. . . . It is quite in vain to pray for a tranquil spirit when the organs of digestion are out of order. . . . The presumption of prayer being answered is measured by the degree in which it leads us to study the conditions that tend to bring about that for which we pray. We are to work for it not without prayer, but not to pray for it without work."

For Digestibility of Certain Foods.

The rule should be to chew each mouthful as long as there are any lumps or portions, even the smallest, not reduced. One can easily digest the toughest potato if he will only take the pains, however much trouble it may be, to thoroughly and completely reduce it before swallowing. Corn and beans enjoy the reputation of being very hard to digest, simply because so many persons will not take the trouble to hunt out each separate grain and grind it up. (So of the great bugbear, newly-baked bread and hot cakes.) A hard-boiled egg is considered indigestible, and it is so only because its toughness gives it resistance to the process of mastication; while a raw or soft-boiled egg, or one boiled a long time until it becomes "mealy," is quite easy of digestion.—*Medical World*.

Consumption at Different Ages.

The common impression based on the statements of many of the older text-books is that phthisis is especially a disease of early adult life. The statistics of death in Great Britain, probably the most complete and extensive anywhere attainable, however, indicate that this is not correct. The largest number of deaths, according to these statistics, occur in the decade from 35 to 45 years of age, and that not until about 60 years of age do the number of deaths from this cause, as compared with the number of persons living, fall below the average for the period, from twenty to twenty-five. It is to be remembered, however, that the disease usually requires several years to run its course, so that infection probably occurs on the average nearly five years earlier than death.—*Philadelphia Polyclinic*.

Infant Feeding.

An infant should double its weight in six months and treble it in a year if its nutrition is in every way satisfactory. The weighing and measuring should be conducted monthly, and the practical point is this: If a child does not increase at the rate of one pound a month during the first year of life, and twelve ounces a month during the second year, its nutrition is not satisfactory. If a child does not grow nearly three-quarters of an inch every month during the first year of life, and half an inch a month during the second year of life, it is not satisfactory. The latter is, of course, not of the same importance as the former. A nurse should cease nursing if the result does not come near to this proportion with regard to increase of weight. Clearly, premature children would not be so large, though they should increase at the same ratio.

Paper Handkerchiefs for Consumptives.

The amount of phthisical infection conveyed to the laundry in the clothing and linen of consumptive patients must be, in the aggregate, something enormous. Fortunately, no doubt, the greater number of the specific bacilli are destroyed in the process of washing. Nevertheless, there can be little doubt that infection is, at times, spread from the laundry. Handkerchiefs are specially liable to be charged with phthisical sputa. There can be no excuse, however, at this time of day, for sending handkerchiefs to the wash charged in this way with dangerous seeds of disease. Long ago the use of soft paper handkerchiefs, sent from Japan, was introduced to the profession. They can be procured at trifling expense, at a less cost, indeed, than that incurred for the washing of an ordinary linen handkerchief. The paper substitute can be burned when done with, and the disease-germs are thus effectually disposed of. Nothing can be more distressing to the zealous sanitarian than the reckless way in which the specific poison of phthisis is scattered broadcast among our communities. Prompt and absolute disinfection or destruction of all excreta should be the rule in all cases of consumption. Before we can hope to reach such a stage of enlightenment, however, the popular mind will have to be educated up to the requisite pitch. A crusade against so terrible a scourge as consumption might well be included within the scheme of any lay newspaper boasting of an advanced social programme.—*Medical Press*.

Effect of Spices on the Digestion.

This has been investigated by Gottlieb (*Wr. Med. Bl.*), who found that pungent substances, by irritating the gastric mucous membrane, acted reflexly as powerful stimulants of the pancreatic secretion. He introduced a canula into the pancreas of a rabbit, so as not to interfere with the secretory process, and was thus enabled to observe for hours at a time the continuous and regular separation of pancreatic juice. When small quantities of powdered mustard and of extract of pepper were injected into the stomach, the pancreatic secretion was seen to increase three or four fold in a few minutes. It contained a somewhat larger proportion of water than the normal fluid, but possesses the same digestive properties. Similar results were produced by alkaline carbonates and dilute acids.

Innocuous Transportation of the Dead.

Dr. J. D. Griffith, of Kansas City, Mo., read a paper on this subject before the American Public Health Association. The author said that the age demands a far greater protection to the public health. He was convinced that we owe to the travelling public that greater precautions should be taken in the transportation of the dead body. He cited as evidence of the virulence of a dead body that in a Normandy village, twenty-three years after an epidemic of diphtheria, some of the bodies of those who died of the disease were exhumed, and an epidemic at once broke out, first among those who opened the grave, and then spread from those to many others. Other examples were cited. Until the public are educated to the point of the thorough sanitation of cremation, the transportation of dead bodies by the railways is, and always will be, a source of very great danger. The speaker urged that the attention of the different legislative bodies of the country be directed by the association to a subject of such vital importance. He urged, furthermore, that all railways cut off a small portion of their baggage-cars for the transportation of dead bodies. The dead body should be placed in a box lined with zinc, with a door very much after the fashion of a large ice-chest. This done, the lives of employes would not be endangered; no broken or open box could become infected, and no odor could escape from the car.

The Practical Value of Sanitation.

In the course of his introductory to the tenth biennial report of the Maryland State Board of Health, the secretary, Dr. James A. Stewart, says, "The world over, wherever sanitary laws have been enforced, the death-rate has steadily diminished, whilst the effective force of an increased producing power has been correspondingly increased. The loss in earning capacity in all classes of workers is in exact proportion to the amount of sickness which has prevailed during a given period of time. No better example can be cited than in the improved productive power of the people of the eastern shore of Maryland, through the improvement in the general health of that section of our State. Only a few years ago *the value of land in that section was at the lowest ebb, owing to a general reputation for unhealthfulness, whilst at this time farm lands have doubled and in some places quadrupled in value.*

A Unique Sanitary Building.

In Yokohama a unique building has recently been constructed by Dr. W. Van der Heyden. The walls are of boxes of glass arranged in brick fashion and filled with a solution of alum, which allows light to pass but intercepts certain heat-rays. These boxes, which have now resisted during one year and a half the influence of cold and heat, shocks and earthquakes, are resting on cast-iron supports. The necessary gaps between two rows are filled with felt and then covered with boards. A series of the boxes above each other and next to one another, with as little space between as possible, and this space filled with felt, form the outside walls of the house; the roof, which is flat and is supported by the cast-iron pillars which carry the boxes, can be made in exactly the same mould. In the house, glass panes pressed against each other, but with strips of rubber between them, form the horizontal ceiling; above this a thick layer of ashes rests, whereupon is a light frame-work of wood covered over with cement. This, of course, makes the roof not translucent, but it defends the roof well against radiant heat, and being made of bad conducting material, the heat of the interior is not lost; the four walls being totally translucent, there is more light than in any other description of dwelling. Special arrangements provide for ventilation and drainage.

The Concomitants of Cremation.

It will be, doubtless, interesting to our readers to peruse this following brief description of a cremation which the Rev. Dr. Beecher witnessed at Lancaster, Pa., and described in the *Elmira Advertiser* :

"A summer morning, early ; a short ride past ancient cemeteries ; a grass-grown carriage-way between rows of corn, cool with dew ; a modest brick house, that might be mistaken for a mission chapel, with its steep roof and lancet-topped windows ; broad two-leaved front door ; marble tablet above it inscribed in

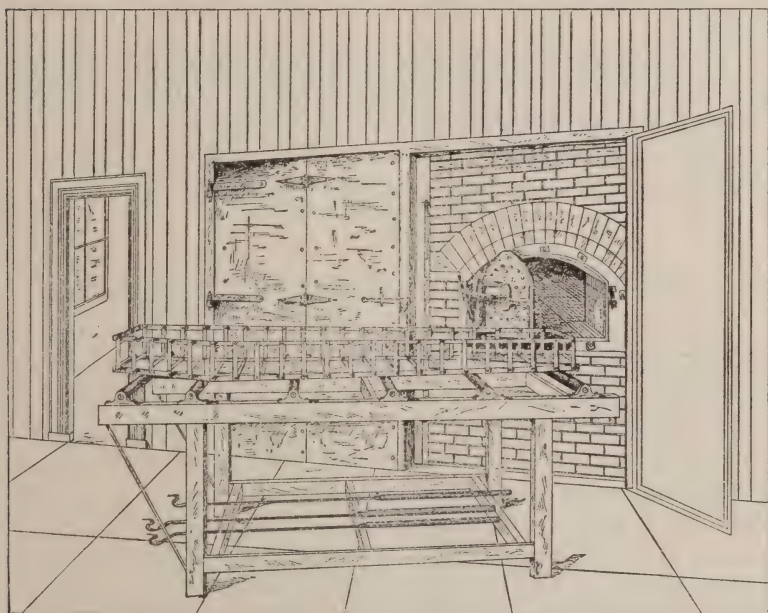


bold old English text : "Crematorium." Four friends, an undertaker, and our dead. We enter.

"A cool room,—almost cold ; a smooth, brown-stone floor ; walls grained oak ; six windows, all open, on three sides of the high, church-like room. The fourth wall, opposite the door, broken by two flat-arched iron doors,—black. Revealed rafters and roof of iron, high up. Sunbeams slanting low through the two east windows ; a bier framed honestly and hip-high, on wooden casters ; a latticed cradle of iron, with low sides and

coffin-shaped, resting on the rollers of the bier ; a form head to foot in moistened white lying on the cradle and wholly visible, until a fringed pall of decent black is reverently adjusted, draping the bier to the floor. A few minutes of silence and waiting.

“ One of the two windows at the level of the cradle is opened in the otherwise cold, blank, oaken wall ; the bier is rolled up to its sill ; a moment’s delay ; by unseen influence the cradle slides slowly forward through the door, the pall retreating at the sill ; the white form emerges gradually from its concealment, enters, and for three seconds or less may be seen lying motionless *on* and



in a silent sunset glow. The heavy door swings shut, and is set home tightly to its seat. Nothing more.

“ All that belongs to the earth of him we loved we gather in their whiteness and have given to the earth. All that belonged to the air we set free to fly away on invisible wings in the sunshine. We have heard the Master say, ‘ *Loose him and let him go* ’ —and we have obeyed.”

A case which was recently tried in Toronto involved the contagiousness of consumption. The court held that consumption is contagious.

The Influence of Alcohol on Human Life.

The British Medical Association, wishing an exact statement of the influence of alcohol over the duration of life, charged a commission with the inquiry in three classes of subjects :

- (1) Total abstainers.
- (2) Moderate drinkers.
- (3) Excessive drinkers.

Observations included 4234 cases of death in five categories of individuals, and below is the average attained by each class :

- (1) Abstainers—Fifty-one years and one month.
- (2) Moderate drinkers—Sixty-three years and one-half month.
- (3) Occasional drinkers—Fifty-nine years and two months.
- (4) Habitual drinkers—Fifty-seven years and two months.
- (5) Drunkards—Fifty-three years and one-half month.

The most advanced age is attained by moderate drinkers and the minimum by abstainers.—*The Railway Surgeon.*

An International Movement in Athletics.

The most remarkable outcome of all this revived interest in athleticism and sports is the re-establishment of the Olympian games after a lapse of some 2000 years. The centre of the movement for a great quadrennial meeting of amateur champions from all nations is in Paris ; and the leader in the movement is an accomplished young Frenchman, known to many Americans,—Baron Pierre de Coubertin. M. de Coubertin, who is now in his thirty-second year, is a member of many learned societies in France, is a prominent writer for the principal reviews and journals of Paris, and is already eminent as a leading authority on university life and work. Thus he has published several volumes upon university education in England and in the United States, and in 1889 bore an official commission from the French Minister of Public Instruction to investigate various matters pertaining to the higher education in the United States. Through his interest in the organization of university instruction, M. de Coubertin has taken the leading place in France in the promotion of physical culture in connection with the schools of every grade, and has for some time served as the general secretary of the French Union of Athletic Clubs. This union federalizes the gymnastic, boating, cycling,

and various other amateur athletic societies of the country. His visit at Princeton was gracefully signalized by the founding of a prize for the best speech by a member of the senior class on some topic of contemporary French politics. The prize takes the form each year of a medal, designed by an eminent French sculptor, and engraved and struck in Paris. It is stated, by the way, in a Parisian newspaper which has come to our notice, that M. de Coubertin has now decided to found two other American university prizes. One of these is destined for the University of Louisiana, at New Orleans, and the other is to be contested for in San Francisco each year by a debater from the Leland Stanford, Jr., University, and one from the State University of California. The prizes are to be medals in memory of the lamented President Carnot. Students may well covet the honor of winning one of these Coubertin prizes.—Albert Shaw, in the December *Review of Reviews*.

Love and Laughter.

Laugh, and the world laughs with you ;
 Weep and you weep alone ;
 This grand old earth must borrow its mirth.
 It has sorrow enough of its own.

Sing, and the hills will answer ;
 Sigh, it is lost on the air ;
 The echoes bound to a joyful sound,
 But shrink from voicing care.

Be glad, and your friends are many ;
 Be sad, and you lose them all ;
 There are none to decline your nectared wine,
 But alone you must drink life's gall.

There's room in the halls of pleasure
 For a long and lordly train ;
 But one by one we must all file on
 Through the narrow aisle of pain.

Feast, and your halls are crowded ;
 Fast, and the world goes by ;
 Succeed and give, 'twill help you live,
 But no one can help you die.

Rejoice, and men will seek you ;
 Grieve, and they turn and go ;
 They want full measure of all your pleasure,
 But they do not want your woe.—*John A. Joyce.*

Pugilism and Longevity.

The following words from the *National Popular Review* so entirely coincide with our own firm convictions in reference to physical culture that we cannot refrain from reproducing them :

“ It is a noticeable fact that no pugilist ever reached the age to which many early saints, clergymen, scientists, philosophers, pensioners, or paupers have so easily attained. We have no centenarian pugilists. Neither has the training nor the physique, or constitutional conditions resulting from that training, proved a specific against the inroads of consumption or a preventive in rheumatism or the gout,—diseases which seem to be the main enemies of the past generation of British pugilists.

“ I have only been able to look up the data regarding the lives of some 60 noted pugilists. Of these 60, only 29 passed their fiftieth year. Of the 31 who did not, 2 only reached their twenty-eighth year; 2 died in their thirtieth, and 3 in their thirty-second year; 1 died in the thirty-third year, and 2 passed out in their thirty-fourth year; only 1 died during his thirty-fifth year, and 2 died during their thirty-sixth year; 2 more passed out in their thirty-seventh, and 2 died in their thirty-eighth. The age of thirty-nine seems to be particularly fatal to pugilism, as it is claimed 4, making a total of 21 who never reached their fortieth year. Had these giants and modern Achilleses and Hectors gone into the clergy or the law, and never gone beyond any more physical training than that required to play lawn tennis or to gesticulate before a half-asleep jury, it is safe to say that most of the 21 would not only have passed their fortieth year, but that in all probability have all reached even their eightieth,—if the stock of vitality at the beginning is to be taken into account. Young ministers hardly ever die between their twenty-seventh and fortieth years, and most assuredly will they live to eighty if endowed with the physique of a Belcher or that of an Evans, or of a Curtis.”

Nineteenth Century Olympic Games.

The international committee that is now preparing for the games at Athens is as thoroughly representative as one could well desire. With a Greek for president, and two Frenchmen in the offices of secretary and treasurer, the committee includes General de Boutowski, of the Russian Military School at St. Petersburg ;

Dr. J. Guth, who is an eminent professor in Bohemia ; Commandant Balck, head professor in the Central Institute of Gymnastics in Stockholm, Sweden ; Leonard A. Cuff, of the New Zealand Amateur Athletic Association ; Professor William M. Sloane, of Princeton ; Dr. Zubiaur, rector of the National College of Uruguay ; C. Herbert, secretary of the Amateur Athletic Association of England ; Lord Ampthill, also representing England ; Franz Kémény, director of a Royal School in Hungary ; the Duc d'Andria Carata, of Naples ; and the Count de Bousies, of Brussels.

The Athenians are not only enthusiastic over the proposed revival on Greek soil of the ancient Olympian games, but they are already preparing in a practical way to meet all possible expectations. For some of the feats and contests they are intending to make use of the very spots where Athenians of old were accustomed to assemble to witness dramatic representations and other entertainments. The harbor of the Piræus will lend itself to rowing contents and other kinds of nautical sports. While modern games of recognized standing will all be represented, there will also be an interesting attempt, as a matter of special entertainment, to present in antique fashion many of the very same feats of skill and contests of strength and endurance that formed the chief attraction of the games of the classical Greeks. The American and other schools of archæology in Athens are giving very active co-operation, the king and the government will lend full official sanction to the occasion, and there can be no doubt of its very unique and brilliant success.—Albert Shaw, in the December *Review of Reviews*.

Malaria.

In the course of a paper on "Malaria," read before the American Climatological Association by Dr. William H. Daly, of Pittsburg, we find the author stating what we believe to be some very valuable facts. Dr. Daly deems the malarial germ one of the infusoria got in impure water in lowlands and swamps. He cited cases in his practice where the malaria was due to drinking well-water in the lowlands. Some believe that malaria is most dangerous at night ; that the poison is breathed into the system. He believes the disease originates only in impure water, and thinks

that the habitat of the germ is in the soil. Water in malarial districts always contained the germ. He referred to Lavarán's book. So-called malaria is a water-borne disease. Malarial fever in the United States is clearly a preventable disease. He said that in malarial districts all escaped who drank pure cistern water; they were healthy and ruddy. Malaria gets into the body through the food channels.

Medical Director Gihon, of Washington, while accepting part of Dr. Daly's statements, did not agree with him in thinking that aqueous vapor in such localities was harmless.

Dr. Wolfred Nelson spoke of malaria in the island of Cuba, where he had spent nearly six months. The Juraguay mines are near Santiago de Cuba. His friend, the late Dr. John Hartmann, a graduate of Philadelphia, was surgeon to the Juraguay Mining Company. Hundreds of Spaniards were employed. They work in gangs by day and by night as well. The night gang, who slept by day and went to work on a full stomach, never developed a single case of malaria in any form, while the day gang, who slept by night, while fog and vapors were rife, had malarial fever, bilious remittents, and the multiple malarial manifestations so familiar to all practitioners in the tropics.

Dr. Daly closed the discussion. He said that he believed that in the next five years his views would be accepted by the profession.

Athletics and Education.

The revival of interest in athletic sports, out-of-door recreations, and physical culture is one of the most hopeful signs of the day. Experience has shown that athleticism and sports can be made to minister to almost everything that is pernicious and degrading on the one hand, or can, if properly controlled and directed, minister powerfully to everything that is wholesome and ennobling. The drift a very few years ago was almost wholly in the direction of extreme professionalism. A reaction has set in, and a better atmosphere begins to pervade the world of sport and recreation. In our own country no better thing for legitimate sports has ever happened than the success of the no-gambling, no-pool-selling amendment to the constitution of New York, adopted by a large majority on November 6. Race-track gambling is not a necessary concomitant of the development of speed in

horses. The adoption of the amendment, coupled with the overthrow of the race-track gamblers in New Jersey, is destined not only to improve the morals of the turf, but also to promote the interests of legitimate sport of all kinds, whether professional or amateur. The great international yacht races of the past season have stimulated an unwonted interest in nautical sports of an honorable and wholly amateur character. In our American colleges strenuous and generally successful efforts have been made to eliminate the taint of professionalism. Intercollegiate contests have been brought under better regulations, and the game of football in particular has been improved by new rules, which do away with very much of its alleged brutality.

Educators everywhere have begun to appreciate the fact that physical culture is as truly a part of the business of the schools as mental and moral culture. The truth that character to a very great extent is dependent upon the development of a sound and well-disciplined body has come like a new revelation to the world of professional educators; and, as a consequence, in our best schools some kind and degree of physical training is now assuming the position of the one indispensable branch of instruction. Greek, or Calculus, or Chemistry may be optional; but proper care, discipline, and development of the physical man, in the judgment of the chief educators, should be uniformly required of every student. The relation between gymnastic exercises, athletic sports, and great national games is so intimate that there is reason enough for associating them together.—Albert Shaw, in the *December Review of Reviews*.

Keep Your Mouth Shut.

Dr. A. W. Davis thus writes in *The Healthy Home*: "Four or five hundred years ago," says *Science Siftings*, "there was a superstition common to Europe that the devil was always lying in wait to enter a man's body and take possession of him. Satan generally went in by the mouth, but when he had waited a reasonable length of time and the man did not open his mouth, the devil made him yawn, and when his mouth was open jumped down his throat. So many cases of this kind occurred that the people learned to make the sign of the cross over their mouths whenever they yawned, in order to scare away the devil.

"The peasantry in Italy and Spain still adhere to this method, but most other people have dispensed with the cross sign, and keep out the devil by simply placing the hand before the lips. It is a remarkable survival of a practice after the significance has perished."

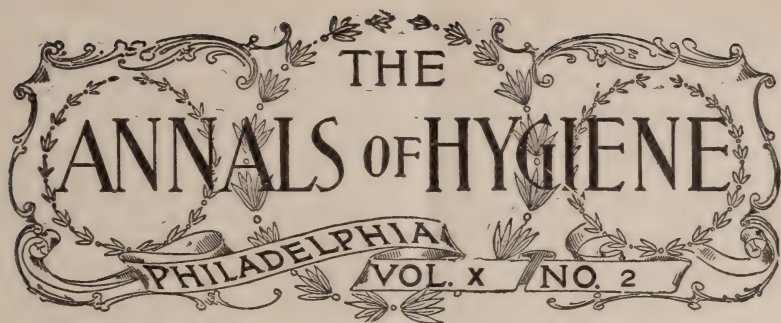
As we pass people in the street, watch them at their work, in church, and in society, probably half of them have their mouths open. The old superstition was probably well grounded,—the devil of ill-health is very likely to enter at the mouth. Particularly is this true when the season advances towards winter, and the difference between the outside air and the bodily temperature becomes steadily greater.

The sinuous nose passage, with its fringe of hair, is meant to warm and strain the air before it enters the sensitive lungs. No wonder the mouth-breathers are liable to colds and pneumonia, especially when they keep up the practice, as a rule, both day and night. In fact, many who are innocent during their waking hours are determined sinners against good taste and good health by defiantly opening the mouth in sleep. It is more than an annoyance to be a snorer ; it is a serious misfortune.



The Quarterly Illustrator.

This popular journal enters upon its third volume with the current number, and the number begins with a subject very dear to the average heart. The American girl has been our most important national characteristic since James expounded that abnormal specimen, Daisy Miller. Since then the variety and number of American girl types have been limited only by the number of authors to write about them. Under the title of "The Origin of a Type of the American Girl," Richard Harding Davis tells with his judiciously injudicious levity of how Charles Dana Gibson became the originator of a popular type. Harry C. Jones, Editor and Publisher, 92, 94 and 96 Fifth Avenue, New York.



COMMUNICATIONS.

The Nervous System and Disease.

BY JOSEPH F. EDWARDS, M.D.,

Atlantic City, N. J.

THE direction in which most of the leading scientific hygienic investigators of the day are working is towards the elucidation of the causes of immunity from disease; the germ, or seed, or cause of nearly every contagious disease has been isolated and studied, and we are ready to believe, from the rapidity of their power of multiplication, that these disease-germs must be much more generally present in and about our surroundings than the occurrence of cases of contagious disease would seem to indicate,—that is to say, it must be evident that for every case of germ-disease that occurs, there must be very many persons who take these germs into their bodies with impunity. Again, in the case of organic diseases of non-microbic origin, very many will be subjected to the causes of such diseases without their development.

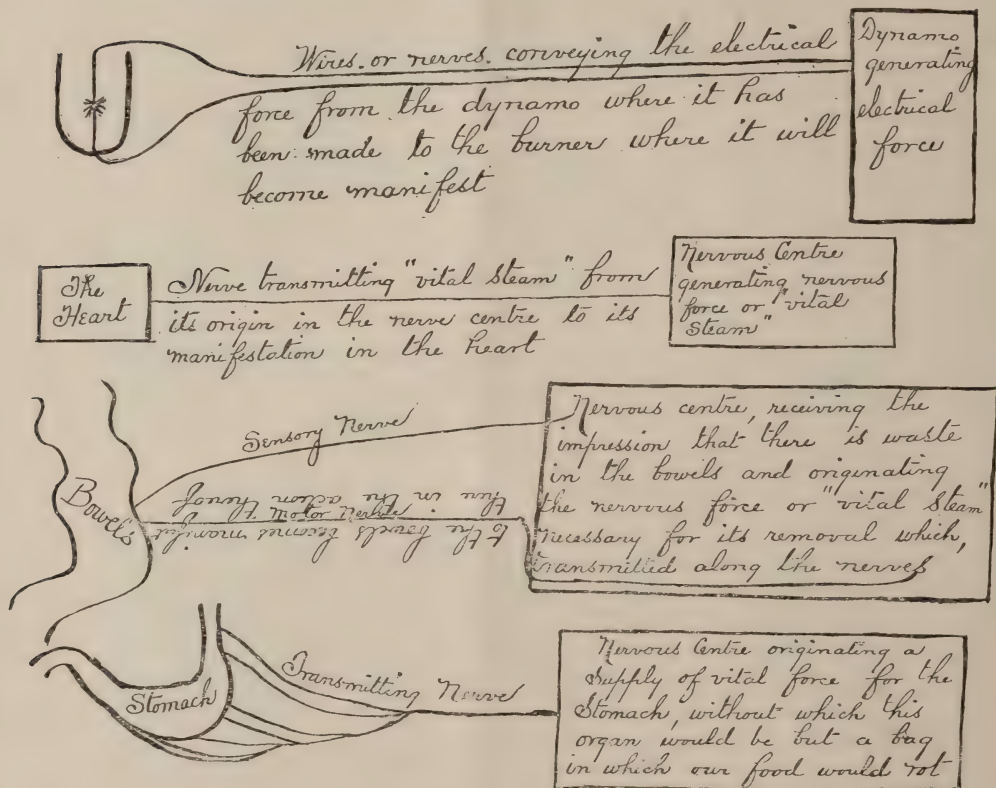
Is my meaning clear? Let me concisely make it so. “Why is it that while we are all constantly subjected to the causes of disease, so comparatively few contract disease?” What constitutes the immunity that is enjoyed by so many?

This, I say, is the direction in which scientific investigators are now working; several theories have been advanced, but none of them have yet received universal recognition.

Experience, the best of teachers, has led me to believe that a

solution of this question is to be found in the condition of the nervous system. One very weak point in all scientific investigation is the fact that, as a rule, the investigator starts out with a theory, and we all know that it is not usually very difficult to find seeming proof of a pet theory that has taken deep hold of our minds.

Some years ago a young person, apparently in the most



vigorous health, said, laughingly, to me, as we met on the street, "Doctor, I am getting paralyzed; you could cut off my fingers and I would not feel it; I have such a tingling in my left arm." A few more laughing remarks and we parted. Two weeks later this person was seized with pneumonia, evidently of microbic origin. Examining the urine for another purpose, I was struck to find it loaded with the débris of a broken-down nervous system. This case made a deep impression upon me, but I did not, at the

time, appreciate its full significance. A little later on I was called hurriedly to a frightful case of general erysipelas following an operation for cancer of the breast in a large, vigorous woman. She was desperately ill, and it seemed impossible that she could recover. An examination of the urine again revealed a broken-down nervous system ; remedies calculated to build up the nervous system were prescribed ; the patient recovered ; still more, these remedies were continued ; cancerous nodules that had formed in the other breast disappeared, and this woman is to-day in the enjoyment of apparently perfect health.

Patients come into my office complaining of all kinds of ill health : of constipation ; of dyspepsia ; of palpitation of the heart ; of shortness of breath ; of general weakness ; of irritability of temper ; of loss of appetite ; of the thousand and one ill feelings that may portend anything and everything. I examine the urine and find therein the *débris* of a broken-down nervous system ; I prescribe for its restoration and these symptoms disappear.

A lady from Baltimore, whom you would remark on the street as the picture of health, comes into my office complaining of an assortment of trivial symptoms, the aggregate of which makes life miserable. I, mentally, classify her as a *crank* who has a passion for doctors and drugs. As though reading my thoughts, her husband, who was present, remarked, "Our doctor at home is one of the leading physicians ; I believe that he thinks my wife is a crank and that there is nothing the matter with her ; but I know that she is not well ; I know that she is very nervous." I asked for a bottle of urine : there it was again, full of nervous *débris* ; appropriate treatment and recovery.

The constant repetition of such experiences could not but deeply impress me ; they were not proving or disproving any preconceived theory ; they were simply facts ; *plain, stern, undeniable* facts. Could I now find a theory that would fit into these facts ? I think that I have.

The human body is a collection of organic matter ; the lungs, heart, kidneys, liver, stomach, bowels, spleen, pancreas,—all the parts and organs of the body are collections of organic matter ; they are all essential to life and health, but not one of them possesses in itself the power of life. Life resides in the nervous system ; every part and every organ of the body is supplied with nerves ; the nerves are but transmitting wires, so to speak. Nervous force is life ; nervous force is generated in the nervous

centres, in the brain, the spinal cord, and the nervous ganglia scattered everywhere throughout the body. Every organ may be healthy, but if there be not a bountiful supply of nervous force of good quality, none of the vital functions will be properly performed, *including the function of resistance to disease*.

Referring to our illustration, to make the matter clear, let us suppose an arc light with all of its parts in good condition; a perfect dynamo half a mile away and conducting wires between; start the dynamo into action and a brilliant illumination results; but if the dynamo be worn out, but a feeble light will flicker, even though the burner and the wires be in good condition; while, if both dynamo and burner be out of order, the result will be most dismal.

To apply this to the human body; if the organs be healthy and if a good nervous system generates a sufficiency of good nervous force which good nerves convey to the organs, perfect health and the *power of resistance to disease* must be the result; but if the nervous system be so run down that it cannot generate this force, even though the nerves may be capable of transmitting it and the organs may be capable of utilizing it, a departure from the healthy standard and a susceptibility to the causes of disease would seem to be the logical result.

The electric light burner makes manifest a transmitted force that is generated some distance away; the human organs also make manifest a transmitted vital force that is generated some distance away in the nervous system.

Now, we know that the life of the body consists of a constant building up and breaking down of the constituent parts of the body, and that in adult life the closer these two processes balance each other the more perfect will be the phenomena of life. The nervous system is no exception to this general rule; it is constantly building up and breaking down, and if there is an exact balance between the two, the amount and quality of nervous force generated will be just that which is requisite for healthy life; while it must be obvious that if the breaking-down process is in excess over that of the building up, that such a broken-down nervous system cannot generate the requisite quantity and quality of nervous force.

Consider for a moment the phenomena of inflammation, one of the characteristics of which is the presence of an excessive amount of blood in the vessels of the part that is inflamed. The

calibre of blood-vessels is governed automatically by nervous force, so that just the requisite amount of blood is allowed to circulate in the vessels of any given part; hence, if too much blood is present in any part of the body, it must be that the nervous force regulating the vessels of that part is deranged, and, conversely, if the nervous force regulating the function of any organ or part be deranged, it must be evident that such organ or part is in danger of derangement itself.

What steam is to the locomotive engine, nervous force is to the human body; a person whose nervous system is generating a sufficiency of nervous force of efficient quality cannot be sick, unless some of his organs are deranged, while if this nervous force be deficient in quality or quantity he cannot be well, even though all of his organs and parts may be healthy. Hence a person whose nervous system is "run down" is not only especially liable to chronic disease of any organ, but if the germs of any contagious disease enter his system he will fall an easy prey to them, because he will not have the "vital steam" or nervous force to enable him to combat and conquer them.

Any physician will tell you that a sound nervous system will help its possessor to withstand the inroads of disease of any kind, and years of experience have convinced me that no matter what disease I may have to contend with, my results have always been the best when I have directed my efforts to sustaining and building up the nervous system, thus increasing the amount and improving the quality of the nervous force that it generates.

Does not this theory fit very snugly into the facts stated in the beginning of this article? Remember that a theory did not develop the facts, but that the facts forced themselves upon my notice, and that it was only when the facts had accumulated to a convincing degree that I sought for a theory fitted to them.

So firm has become my belief in this general influence of the nervous system that I now rarely fail to include an examination of the urine for nervous *débris* in the examination of my patients, and it is really astonishing how often it is found, even in those who offer no other evidence of nervous derangement.

It seems to me that if we rightly estimate the value of nervous force or "vital steam," it will not be difficult for us to understand how a deficiency thereof will allow us to be dyspeptic, or constipated, or bilious, or to suffer from any of the lesser or greater ills of an incompletely working organism.

The practical hygienic application of these facts and this theory is to be watchful that the nervous system is kept in good condition ; that he whose nervous system is "run down" is not only sure to suffer from many minor diseases, but that he is in constant danger from the causes of the greater diseases that are constantly surrounding him.

"Heart failure," about which we hear so much nowadays, is an interesting and striking illustration of the bad results of too little "vital steam" or nervous force. There was a time when I did not like this expression, when I did not think that it was correct, because I could not realize that the heart could cease its action, save on account of disease of this organ itself or of a general fatal exhaustion of vitality ; but my later experience teaches me that the heart is very much like a steam-pump, and that if it be not constantly supplied with an abundance of steam of good quality, that it is liable to stop short, even though the heart itself and all the other organs may be perfectly sound. That which thus results fatally, this diminished production of steam, when applied to the vital pump, the heart, may, when applied to any other organ, produce disease or derangement thereof.

1625 PACIFIC AVENUE.

Hygiene and Diet in the Prevention of Disease.

BY A. M. DAVIS, PH.D., M.D.,

Germantown, Pa.



ALTHOUGH sad to relate, it is true, nevertheless, that a large proportion of the people composing our present generation are offspring of parents who have, throughout their lives, utterly disregarded the laws of hygiene and of health, and through exposure and excesses of various kinds have reduced themselves to a condition bordering on disease. Many children have been and are, therefore, handicapped in the beginning,—*i.e.*, brought to live in the world with an enfeebled circulation and a maldeveloped nervous system, which renders life a miserable existence, and totally unfits them for the hardships and struggles common to us all. Although this class of cases, because of their lowered vitality and lack of

physical resistance, are especially predisposed to the onset of disease, yet it becomes almost an absolute necessity for the strong as well as the feeble, who live in our crowded cities and amid civilization, to observe hygienic and dietetic principles if the health of the individual is to be maintained; and this applies not only to adult life, but to the first period of our existence,—the days of babyhood. Undoubtedly, if surrounded by an unpolluted atmosphere, and if properly supplied by pure water and wholesome food, the fearful ravages committed by the prevailing epidemics of this age would be almost unheard of, and death-rates due to other diseases, notably that of phthisis, would be reduced to a remarkably low percentage; but under existing conditions the chief question that arises is, "How are we to prepare our bodies that they will successfully resist the onset of that dread enemy,—disease?" How can we build the strongest our physical houses which we are given to live in?

In that mystic age of infancy, hygienic and dietetic restrictions are of the utmost importance. Says Starr, "Every well-regulated house in which there are children should have two nurseries, the one for occupation by day, the other by night, although the day nursery may be regarded as a winter resort merely, for when the first warm days of May or June make the parents bask at open windows, the child is hurried off to a suburban hotel or farm-house or to the sea-coast. There should be at least two windows to the day-room, which should face, if possible, a southwest exposure, the windows being, of course, securely barred. Sun should never be shut out of the day-room, which should be freely ventilated and kept at as uniform a temperature as possible (68°–70° F.)."

The walls of the nursery, which should, in case of contagious disease, be thoroughly scrubbed, may be painted or covered with varnished paper, while the floor is most readily cleaned by applying hard-oil finish. The articles of furniture, and toys allotted children, should be few and devoid of sharp angles or edges, and not easily breakable. If grown persons are sensible in a measure to atmospheric changes, infants are extremely so. The clothing, which must be left to the discretion of the parents (varying with the climate in which they live), should always be warm and fit loosely, the arms and legs *not* being left uncovered. Although many babies have been reared in health with uncovered knees, who can say how many have died from the same cause? The tis-

sues of an infant are exquisitely delicate and sensitive, the slightest draught of air producing often serious results in the weak and poorly nourished, whereas the strong are better able to withstand exposure. Freedom of motion and healthy exercise should be the rule with children, the open air being preferred, if at the proper season of the year. It develops the appetite and muscles, tends to regulate the bowels, invigorates the nerves, and strengthens the circulation, respiration, and digestion. Nursing should be unaccompanied by jumping, jolting movements on the knees or in a vehicle, which are as distasteful to a child as driving without springs over a rough road would be to an adult.

After the age of babyhood (the sixth year) the cultivation of mind and body must bear a definite relation one to the other, every child, of course, being a law unto himself. Healthy children should be left to play as freely and noisily as they choose in the open air or nursery, their own sensations telling them when to stop and when to begin again. It is well to follow certain rules in regard to sleep. From the time of birth until the seventh or eighth month the infant should sleep at least six hours continuously during the night, and as many during the day as the health and strength demand. From the first twelve months until the end of two and a half years a mid-day nap should be taken of from one to two hours. From two and a half to four years it is well to place the hour of going to bed at 7 P.M. and the hour of rising at 6 or 7 A.M.; an afternoon nap of one to two hours may or may not be taken, depending on the health and strength of the child. After the fourth or fifth year at least ten hours' sleep should be persisted in at night, the hour of retiring being never later than nine o'clock.

Great waste of strength and patience can be averted if the habit be not formed of carrying or rocking young infants until they fall asleep. This is entirely unnecessary for baby's comfort and welfare, and when once formed is very hard to break.

The best and most natural method of feeding the child is, of course, from the mother's breast.

Immediately following labor a thin bluish-white fluid exudes from the nipples, which acts as a laxative to the new-born, and although the flow of milk is not usually established before the second or third day, the child should be given the nipple every two hours (as soon as the exhaustion following labor has subsided). Sweetened water, fennel tea, and the like are worse

than useless and should never be given, as they overload the child's stomach and diminish the activity of sucking. If, during the period of nursing, it becomes impossible (as from lack or absence of milk secretion, fissured nipples, or a gathered breast) to feed the child in the natural way, one of two measures must be resorted to,—bottle-feeding or a wet-nurse. If the latter, she should be as nearly as possible of the same age as the mother, should not show traces of any constitutional disease (such as consumption), and her child, when examined, should be found healthy and about as old as the child to be nursed. Of the two artificial foods, cow's milk (properly prepared) and condensed milk are, perhaps, the best and most frequently used. In order, however, to supply the suckling with the same amount of nourishment it would derive from the mother's breast, if cow's milk be given it must be prepared according to a fixed rule, differing as it does in chemical composition from that of human milk. A formula which has been devised by Professor A. V. Meigs, and much used of late years, consists of the following :

Cream (containing 14-16 per cent. fat)	2 parts.
Milk	1 part.
Lime-water	2 parts.
Sugar-water (made by mixing eight teaspoonfuls of milk-sugar to one pint of water)	2 parts.

If the stomach be unretentive and the vomited matter contains milk curds (thus giving evidence of indigestion) it may be well to predigest or peptonize the milk before feeding. A good plan is to have ten two-ounce bottles thoroughly cleansed each morning.

Take cream	5 ounces or ten tablespoonfuls.
“ milk	2½ “ “ five “

Mix and put in a skillet. Take a two-and-a-half grain pancreatin powder and five grains of bicarbonate or baking soda, place also in the skillet and heat for six minutes, stirring and sipping constantly, so as not to overheat. Of this mixture put in each bottle six teaspoonfuls, and fill the bottle with sugar-water. Place dry baked cotton in the mouth of the bottle and sterilize twenty minutes. Set aside to cool. Before using place each bottle in a cup of warm water, and fit the nipple over the bottle immediately before giving it to the infant.

Condensed milk, in the words of Professor Starr, contains a

large proportion of sugar, forms fat quickly, and thus large babies; sugar also counteracts the tendency to constipation,—often a troublesome complaint in hand-feeding. It is equally true, however, that as a food it does not contain enough nutrient material to supply the wants of a growing baby; infants fed upon condensed milk, though fat, are pale, lethargic, and flabby; although large, are far from strong; have little power to resist diseases; often cut their teeth late, and are very likely to drift into rickets.

It is important to train the baby, if possible, as to its meal-time. During the first six weeks of infant-life the breast should be given every two hours, excepting from 11 P.M. to 5 A.M. If peevish and fretful during those hours, a little milk from the bottle may be given, and in a short time most children will form the good habit of sleeping at night and thus avert further trouble. In the nursery wards of the Philadelphia Hospital the writer well remembers the general cry which proceeded from the rows of cribs containing bottle-fed infants as the appointed time for feeding drew near.

Below will be found a brief outline, taken from Professor Hirst's lectures, giving the intervals of feeding, amount of food at each feeding, etc.

Age.	Interval.	Number of Feedings in Twenty-four Hours.	Amount of Food at each Feeding.	Total Amount in Twenty-four Hours.
First week	2 hours.	10	1 ounce.	10 ounces.
Second to sixth week . .	2½ "	8	1 to 2 ounces.	12 to 16 "
Sixth to twelfth week . .	3 "	6	3 to 4 "	18 to 24 "
Sixth month	3 "	6	6 "	36 "
Twelfth month	3 "	5	8 "	40 "

A few words in regard to bathing children. As soon after birth as possible, the skin, having been greased thoroughly with warm sweet oil or lard to remove the wax-like substance which envelops the child, should be washed thoroughly with soap and warm water, taking care to protect the eyes. The warm bath should be repeated daily (water at temperature of 90° F.), preferably every noon for the first three years of life.

Immerse the body gently and gradually, and never bathe immediately after a meal or when the child is overheated, as from crying, coughing, etc. Not more than five minutes should be spent in nursing the child, and the process of bathing, drying, and dressing should not occupy more than twenty minutes. If the sight of water excites fear, a bucket or tub containing the water may be covered with a large towel or blanket and the child placed on the towel and gradually immersed.

After the third year three baths a week may be given, one at noon, night, and morning, taking care always after the bath to cause a reaction of the skin by gently rubbing with the palm of the hand. As the age of puberty draws near the child must gradually be taught to wash himself, and should form the habit, if possible, of bathing every day, the temperature of the water ranging from 65° to 75° F. or warmer, according to the delicacy of the child. Bath-thermometers can be obtained at a moderate cost and should *always* be used; from neglect of this precaution many serious accidents have followed, more especially to the new-born, from having the water too hot or too cold.

It might be well to add a few formulæ, giving the preparation and method of applying different baths frequently prescribed by physicians.

Cold Bath.—This, if not carried out properly, can easily produce dangerous results, and should be used with great caution. Strip the child in a warm room, rub the body with the palm of the hand until the skin begins to glow. Stand him in a tub containing enough hot water to cover the feet and sponge rapidly with cold water at a temperature of 65° to 70° F., to which a little rock-salt or sea-water may be added. After sponging, dry thoroughly and quickly with a soft towel and rub the surface with the palm of the hand until it glows.

Cold Pack.—Moisten a sheet (long enough to extend from the child's armpits to his feet) with water at a temperature of 80° F.; lay it upon a mattress covered with a mackintosh; place the child upon the sheet and fold it around him, cover with blankets and let remain for ten minutes, at the end of which time he may be lifted out, wrapped in a warm blanket, and allowed to rest for some time.

Cold Sponge.—Strip the child, place between two blankets, and, keeping the upper blanket over the child, insert the hand containing the damp sponge and rub slowly up and down for ten

minutes. If the sponge feels cold to the patient, warmer water should be used ; and should a sensation of chilliness be experienced, discontinue sponging.

Blanket Bath.—This bath, often used to produce perspiration, is performed by wringing a blanket out of hot water and wrapping it about the child. Over this place three or four dry blankets and let remain for one-half hour. Then dry the skin thoroughly with a soft towel and keep the child in bed.

Soda Bath.—To one tablespoonful bicarbonate of soda add four gallons of water. It is ordered often in skin-eruptions.

Salt-Water Bath.—Add four gallons of hot or cold water (according to the time of the year) to four tablespoonfuls of rock-salt or concentrated sea-water.

Bran Bath.—Enclose one pint of bran in a muslin bag and boil in a quart of water for one hour, after which squeeze the bag thoroughly and add four gallons of warm water. This is also useful in eczema and other diseases.

Mustard Bath.—This, which has been used from time immemorial, both as a foot and general bath, is prepared in the following manner : Take from two tea- to two tablespoonfuls of mustard flour and add hot water from two to four gallons.

Finally, it must not be forgotten that the teeth and hair, finger- and toe-nails of a child require attention : the latter should not be allowed to grow too long nor be trimmed too closely to the quick. The scissors should be moderately dull and the ends of the nails should not be rounded too much. After each bath their condition should be carefully inspected. As soon as the first tooth has cut its way through the tender and delicate gums, the process of cleansing should begin. At first a soft cloth wrapped over the end of the finger and dipped in cold water is sufficient, if rubbed thoroughly. The tooth-brush need not be used until after a number of milk teeth have cut their way through, and then twice a day regularly.

Two precautions are to be observed in the case of the hair : (a) the use of a fine comb ; (b) the employment of hair-oils and hair-washes. By thoroughly brushing the hair with a good brush morning and evening, and thus stimulating the scalp, enough natural oil will be secreted to keep the hair glossy. If the latter tends to fall out the scalp should be washed frequently with soap and water, then freely brushed, and a stimulating lotion used, such as the following :

R Pulv. sodii bor.,	℥iv.
Glycerini,	f℥iv.
Tr. cathar.,	f℥i.
Sp. myrciæ,	f℥i.
Aq. rosæ,	f℥vi. M.

Sig.—Rub one tablespoonful into the scalp daily and follow by thorough washing and vigorous rubbing.

Should chills, fever, vomiting, colic, convulsions, etc., occur the physician should be at once sent for, as great loss of life has occurred and is occurring daily through parents endeavoring to treat symptoms without knowing their cause.

So much could be written about the laws of hygiene and their application in the adult that it may be well for brevity's sake to confine ourselves to a few general rules that should govern every intelligent person who values his or her health. Under the heading of Hygiene must be considered exercise, rest, clothing, climate, and bathing, all of which must be taken into consideration and practised jointly in order to prove of value. The object of clothing is to protect the body against cold and heat, the temperature and humidity of the atmosphere determining largely the quality and quantity of clothing we are to wear.

Wool is a bad conductor of heat and a great absorbent of water, and in these respects is superior to linen or cotton; it should, therefore, in cold climates, be used almost exclusively for underclothing. If we were to take equal thicknesses of leather, wool, and cotton or linen to protect against exposure to a cold wind, the leather would stand first in order of protection, wool next, and cotton or linen (which are about equal) last. Water-proof clothing is also very useful in protecting against intense cold. Protection against heat depends entirely upon the color of the fabric, and not upon the texture. Black absorbs the most heat, then blue, pink, yellow, gray, and white in the order of succession, white being the coolest. Flannel has been worn next to the skin with apparently good results to lessen the risk of malaria. As the miasm of malaria is supposed to enter the system either by the lungs or stomach, it is difficult to understand how this precaution does good. In considering the effect of climate on the health of the individual, everything depends on his vitality, amount of heat-production, habits, and occupation; hence no general rule can be laid down, as acclimatization is entirely possible, and the human economy readily adapts itself in a majority of

instances to the varying conditions of heat and cold, humidity and atmospheric pressure which surround it. Only in a few of the vast majority of cases can climate be said to be the cause of existing ill health.

As a rule, persons take far too little exercise, and this is seen most often among brain-workers and the wealthy, many of whom possess stout and corpulent bodies, but whose muscles are, nevertheless, embedded in the excess of fat and are themselves flabby and flaccid. In this, as in other hygienic measures, the amount of exercise required must be left to the judgment and discretion of the individual, exercise in the open air, of course, being productive of the greatest benefit. Walking affords one of the best methods of exercise, the distance being gauged according to the patient's strength, and increased gradually day after day. The writer has known patients to return from long walks totally exhausted, having fallen into a deep study on the way and been entirely oblivious of their surroundings or the amount of distance traversed. Violent exercise either before or following a meal is, of course, injurious.

The amount of sleep requisite for the health of different individuals varies greatly. Bonaparte could endure great fatigue for days and even weeks with but a few hours of sleep during the twenty-four hours. Frederick the Great required only five hours of sleep daily. During sleep all voluntary action ceases, the number of respirations and heart-beats per minute are decreased, and the body temperature falls one or two degrees; therefore better protection and more clothing is required than when both body and mind are active. Important changes are also taking place in the tissues, effete material, the result of combustion, being removed in the circulation and replaced by healthy tissue. The amount of sleep necessary to good health varies greatly with the individual's vitality and body habits and with the climate in which he lives, more sleep being demanded in warm climates than in cold ones.

A rule recommended by Alfred the Great consisted of "eight hours' work, eight hours' recreation, and eight hours' sleep," and certainly, if practicable, the observance of this could not fail to be beneficial.

Probably no individual hygienic measure promotes the general health and improves nutrition so much as systematic bathing. In atonic conditions of the system, with neurasthenia, the greatest

possible benefit has been derived from the daily use of the cold bath or cold sponge, followed by friction. Hot air (Turkish) and hot vapor (Russian) baths are all to be followed by a cold sponge, douche, or plunge. Their advantage in the long run over cold baths has been questioned. The best time for the cold bath or sponge is in the morning on arising. If the body becomes chilled and remains so in spite of friction following the baths, they are doing harm and should be discontinued.

Temperance in all things is an excellent rule when applied to the dietary of an individual. Every one should be the best judge of the exact diet suited to his or her needs, and what has been proved by previous experience to be injurious should be carefully avoided. Faulty mastication, due to careless haste or decayed teeth, or both, is the direct cause of many cases of malnutrition. The salivary secretion, it must be remembered, plays an important part in the process of digestion; the bolus of food which is improperly moistened and mixed with saliva on reaching the stomach is wholly unfit for further action of the gastric juice. Starchy and nitrogenous foods should be taken in varying proportions adapted to the needs of the individual, obese persons requiring relatively less of the former (bread, potatoes, etc.), and lean subjects more of this and less of the latter (meats, etc.). It must not be forgotten, however, that some persons in perfect health are of slender build, while others are naturally corpulent. Among articles of diet especially useful in the sick-room may be mentioned beef-tea, mutton or chicken broth, milk-toast, gruel, boiled rice, junket, corn-starch, clam bouillon, wine-whey, milk-punch, etc. It becomes, therefore, vitally important that we who constitute a part of the human race of the nineteenth century should carefully consider the best means at our command for the development and maintenance of health, and he who wantonly defies nature and disregards the laws of hygiene will surely live to repent at leisure.

Tuberculosis in Domestic Pets.

Dr. Foehner, of Berlin, has examined some 70,000 sick domestic animals in the past seven years, and of this number only 281 suffered from tuberculosis. Parrots were relatively the most frequently affected, 25 per cent. of those coming under his care being tuberculous. Of the cats, only 1 per cent. showed symptoms of the disease.

School Sanitation.

BY J. DEARNESS,
Inspector of Schools, London, Ont.

(Concluded from page 19.)



NOTWITHSTANDING all that has been written and said respecting the necessity for the ventilation of inhabited buildings, progress in general education upon this subject seems to be very slow; in fact, imperceptible. Usually the ill effects of bad ventilation, which are cumulative and progressive, are so remote in time from their cause that the popular mind fails to connect them, and hence the ill ventilation of school-room, church, or sleeping-room, too frequently a contributing cause, is not thought of when mourning friends stand round the bier of one whose life has declined ere the usual years of adolescence have been counted. "The Lord gave, and the Lord hath taken away; blessed be the name of the Lord," are words not to be pronounced lightly over the grave of a child. I leave it to my hearers to give a name to the mistake that imputes to the Lord the sufferings and death of the little children whom he would have had to perform a miracle to save against our indifference to or ignorance of the natural laws of health. Great tragedies, teaching us the deadliness of our own breath, stand out on the pages of history, such as the death of 123 British men and women from eight hours' confinement in the Black Hole of Calcutta, and the death of 260 out of 300 Austrians taken at Austerlitz and imprisoned for a few hours in a cave, and the 90 passengers of the *Londonderry* suffocated by their own breath while the captain, during a six-hour storm, kept the hatches nailed down. Very probably it was the same agent that caused the Black Assize at Oxford when "spreading from the jail there arose such a damp that almost all were smouldered, the jurors presently dying, and shortly afterwards Sir Robert Bell, Lord Chief Baron; all died in forty hours, the Lord Chief Baron and 300 more."

The connection between cause and effect was, in these dreadful instances, sufficiently immediate to prove the truth "that our own breath is our greatest enemy." Multiplied instances are constantly occurring all around us, differing from these in degree, not in quality; but yet that difference is so great as to obscure the

likeness. Our living-rooms, bedrooms, churches, halls, and school-rooms are too often reservoirs of foul air. Foul air reduces vitality, causes weakness, lessens power to resist disease ; in fact, causes disease, and disease leads to death.

Consideration of certain careful investigations will enable us to understand more intelligently the nature of the vitiation of air that occurs from repeated respiration of it. Samples of out-door air, taken at numerous places, at various elevations, and at all hours of the day and night, show on analysis a composition, varying within a very small range, of—

Oxygen	20.96 per cent.
Carbon dioxide . . . . .	.03 “
Nitrogen	79.01 “

besides vapor and traces of other gases.

In bad localities of large smoky cities it has been found that oxygen fell from 20.96 per cent. to 20.80 or 20.70 per cent., and the carbon dioxide went up from .03 to .07 or .08 per cent. Dr. Angus Smith found the average of 339 analyses of coal mines' air to be 20.26 per cent. of oxygen and .78 per cent. of carbon dioxide ; in places where some of these samples were taken, candles went out, and men could not remain longer than ten minutes at a time.

Even this bad mine air is pure when compared with breath as it issues from the lungs. Pettenkofer's extensive researches and analyses are generally accepted. He showed that expired air, dried, contains—

Oxygen	15.56 per cent.,	decrease of one-fourth.
Carbon dioxide	4.34 “	increase of 140-fold.
Nitrogen	80.10 “	slightly increased.

Death would quickly ensue in an atmosphere containing 20 per cent. of carbon dioxide,¹ but it is uncertain what proportion of carbon dioxide may be endured for the space of a few hours ; Forster remained ten minutes in a room charged with 4 per cent., and Pettenkofer remained hours in a room with 1 per cent., liberated by the action of sulphuric acid on bicarbonate of soda. But while he writes that he could remain hours in the artificially-charged air, he is careful to state that air contaminated with 1 per

¹ See Dalton's Physiology, p. 227, 4th edition.

cent. of carbon dioxide, due to the respiration of human beings, would be almost intolerable.

The peculiar nature of respired air must be noticed here, for while the degree of vitiation is measured by the proportion of carbon dioxide, that is not the most poisonous substance present. The change effected in the air by its circulation in the lungs is not only loss of oxygen and increase of carbon, but there is also a portion of organic matter which may be shown by chemical tests to be nitrogenous and oxidizable. It is this organic matter that produces the fetid smell characteristic of inhabited, unventilated rooms, and which was the really poisonous agent in those dreadful fatalities instanced from the pages of history. In addition to the organic matter respired, other impurities are poured into the air of the school-room by insensible perspiration, by preventable uncleanness of the person and clothing of some of the pupils, by dispersion of dust from the floor and walls, and by chalk-dust from the black-board.

It has been found that in inhabited rooms, when the proportion of carbon dioxide rises from .08 to .10 per cent., the organic impurities of the air are recognizable by the sense of smell, and, further, that the same sense can but scarcely or not at all distinguish .10 per cent. from greatly-increased degrees of vitiation by breathing. Again, presence for a brief time in a foul atmosphere dulls the sense of smell so as to render impurity imperceptible. These causes conceal from us the cognition of the foulness of the air we are taking into our lungs and the danger of remaining in it. In this inventive age what a boon it would be were some one to invent a practical foul-air alarm that would warn the householder of the entrance of that most deadly and unseen enemy of human life,—sewer gas,—that would stop the school-room recitation, or interrupt the minister even in the middle of his prayer by setting up a loud, incessant whirr-r-r for fresh air! Think of a minister preaching on the sacredness of life in a crowded, unventilated house, while he and his hearers are busy killing each other by the poison of their own breath. I heard of a case that occurred near my own home. A Sunday-school room was crowded by the attendance at an entertainment one cold evening. With closed doors and windows the programme was proceeded with; by and by the lights grew dim, and suddenly became extinguished. At this juncture the chairman arose and calmed the rising fears of the nervous ones by the assurance

that there was no cause for alarm ; it was only the foul air. No doubt the meeting was regarded a very successful one. It was certainly successful in showing the necessity for education of the people upon the importance of breathing pure air when they tranquilly remain in a room breathing air so foul that the flame of the lamp perishes in it. In a certain school-house, close, well built, below the average height of ceiling and cubical capacity, there were over forty pupils in attendance. The inspector on the day of his visit found the ventilation very bad, and notified the trustees that the regulation laid down in the school law requiring provision to change the air in the room three times per hour should be carried out. The question of ventilating the school-house was submitted to the annual meeting, and the vote against ventilation stood twenty-eight to one. To maintain, in winter, a supply of pure air in a well-built dwelling costs money, and it would seem that the majority of our people do not yet know well enough the value of pure air to be willing to pay what it costs.

When we appeal to some school trustees and rate-payers to provide ventilation, we are met with such objections as, "There are not any complaints of the children taking sick in school ; children are young and can stand a good deal ; the bit of bad air they get between recesses won't hurt them ; they are to blame themselves, they keep on more fire than they need ; they have far better school-houses than we had, and the foul air never hurt us."

One may marvel that intelligent men cannot, even while they utter the words last quoted, perceive that the close, substantial buildings erected now need artificial means of ventilation far more than the loose frame or log buildings in which they went to school. How general and long-lived seems the fallacy that cool air and pure air are identical ! Even teachers who ought to know the difference are occasionally known to close the stove damper when they have been told that the air in the room is not good. To make bad matters worse, ventilation by the stove—the only means in the room—was shut off. I heard a teacher severely criticised because in the winter "he opened the windows, and shoved more wood into the stove." Another common fallacy, probably honestly entertained, is that the ills, if any, arising from confinement in foul air during school-hours are corrected and cured by breathing pure air out-doors and at their homes. Every

experienced teacher can recall instances of delicate children who could not stand the conditions of school-room life. Again and again such have essayed to attend school regularly, but soon headache, or sleeplessness, or vertigo, or loss of appetite, or symptoms of other disease have constrained parents to take them from school. In a well-taught school, hygienically furnished, I believe there would not be a single example of withdrawal on account of ill health caused by the conditions of school-room life. On the contrary, I have no doubt that social study and social recreation, reasonable in amount and appropriate to the age, are conducive to children's health of body and mind.

But even though sickness were not produced by lack of ventilation, the cost of providing it would be amply and doubly repaid in the more rapid and satisfactory physical and mental growth of children. No problem is solved, no fact is learned, not even a word is spoken without the appropriation of some oxygen. The purer the air breathed the purer the blood; the better the blood the more easily and effectively can the child acquire, retain, recollect, and reason. When the ideal days come parents will be as solicitous that the school-rooms be supplied with pure air as with good teachers.

Were further argument in favor of ventilation needed, I could point to the rapidity with which infectious diseases have spread in unventilated rooms; and I would, even at the risk of wearying you, quote from official returns to show that teachers are, of all classes, the most subject to pulmonary and bronchial troubles, but that I trust Dr. Bryce, in his paper on consumption, discussed at length the influence that the present conditions of school-life exert upon the development of that dreadfully prevalent disease.

With the data supplied us by scientific investigations, it is not difficult to determine what quantity of fresh air must be drawn into a room occupied by a given number of persons to maintain the degree of vitiation below a given proportion. Approximately the depletion of oxygen proceeds as follows:

Each inspiration uses from	20 to 30 cubic inches of air.
16 to 18 inspirations per minute	480 " " "
50 persons per minute	24,000 " " "
50 persons per hour	1,440,000 " " "
20.96 per cent. of the inspiration is oxygen.	
4.60 per cent. of the inspiration is oxygen abstracted by the lungs.	

Hence fifty persons deprive the air of from 44,000 to 66,000 cubic inches of oxygen per hour.

But while the air is becoming impoverished of its oxygen, it is with almost equal rapidity being loaded with carbon dioxide, the rate being 4.3 per cent., as shown before, and hence amounting to from 40,000 to 60,000 cubic inches of the latter gas.

Besides the above changes there is added an indeterminable amount of organic matter.

Various authorities on hygiene place the limits of allowable impurity of the air in dwelling-rooms at from .07 to .10 per cent. of carbon dioxide. The Ontario school law allows each child a minimum cubical capacity of 250 cubic feet; 0.7 per cent. of that space is 302 cubic inches. The child is respiring from 800 to 1200 cubic inches of carbon dioxide per hour, and the original and incoming air contains .04 per cent. of its bulk of the same gas. The problem is, How much air bringing in .04 per cent. of gas will keep 250 cubic feet below .07 or .10 per cent. while the child is adding to the gas at the rate mentioned above?

Following Professor Heymann's formula, based on an exhalation of 900 cubic inches of carbonic dioxide per hour, to keep the air below .07 per cent. of impurity would require 3035 cubic feet of inflow per hour; below .10 per cent., 1270 cubic feet per hour.

The Ontario school law directs that ventilation should be provided to change the air in the room three times per hour, or once in twenty minutes. The greater allowable degree of vitiation—*i.e.*, .10 per cent. (= 1 part in 1000)—requires 423 cubic feet of fresh air per child in twenty minutes, or 21,166 cubic feet in the same time for fifty children.

But allowance may be made for what is called "natural ventilation." This varies greatly according to the several circumstances, the most important one being the material and finish of the walls. Lang estimates the permeability of a brick wall to air at 99 cubic feet per hour for each square yard. Making the most favorable allowance for natural ventilation, an ordinary rural school-room of 12,500 cubic feet (50 times 250 cubic feet) capacity would be tolerably ventilated with provision to introduce and remove 10,000 to 12,000 cubic feet of air every twenty minutes.

To remove 10,000 cubic feet of air in twenty minutes, the flues should take away eight and one-third cubic feet per second. It is not difficult to set up currents in smooth flues moving at the

rate of four to four and one-third feet per second. Hence the minimum size of the ventilating flues of a school-room attended by fifty pupils should be a cross-section of two square feet.

The foregoing facts have been duly considered by engineers and architects when planning large school-buildings in cities and towns which are to be heated with hot air, steam, or hot water, but very little has yet been done towards the proper heating and ventilating of the single-roomed rural school-houses in which two-thirds of the children in the province are receiving their education.

In the two or three months of the school year when a fire is not needed, very satisfactory ventilation—precaution being taken to avoid draughts—can be secured by means of open windows and doors.

It ought to be made an inspector's duty to test, at least once a year, whether the window-sashes can be raised or lowered. If the upper sash has not been hung on weights, a cord may be passed from a staple in the middle of the lower bar of the upper sash to a pulley in the frame above, by means of which the sash may be easily raised and lowered by a person standing on the floor. A board about four inches wide should be fitted closely against the upper part of the upper sash, so that the latter can be lowered sufficiently, even on the windward side, to make an opening between the sashes, allowing an upward draught between them without allowing the wind to blow directly in and produce a dangerous draught.

I have dwelt at length upon the subject of ventilation, believing it at present to be the one of most paramount sanitary importance to our rural schools. Pure air in the school-room and sleeping-room is essential to the robust health and mental vigor of the rising generation. Principal Austin pertinently asks, "Of what use, so far as life is concerned, is culturing highly the mind, if the body is too weak to bear the strain and pressure of life's battles? Of what use garnishing the jewels till their resplendent lustre dazzles the eyes of all beholders, if both casket and jewel are so soon to be thrown into the pit? Why be anxious to increase the size and value of the cargo, if the vessel is so poorly built that the storms will surely wreck her in mid-ocean?"


I heard Dr. Stanley Hall say that investigations respecting the effect of school-life on children, carried on in different countries, show results which are appalling. They show a percentage, he said, of various kinds of ill health of 33, even 40, not to speak

of seeds of ill health as yet indiscernible. He said in effect that the idea is beginning to dawn that health is the highest criterion of an educational system, and that if a school system injures the body it is bad, no matter how much good it may do the mind.

House-Drains.¹

BY R. D. KAHLE, M.D.,

Member State Board of Health, Lima, Ohio.

NDER this head will be considered those appliances for the removal of waste-water, slops, and excrementitious substances produced in a house, and not the ultimate disposal of it either by sewers, cesspools, or on the land. We will treat of the water-carrying system, and not of any dry system.

House-drainage is the first and most important link in a good sewerage system, and as great accuracy should be required in laying out house drains as in laying out a system for a village or city ; in fact, absolute precision should be required.

The water-carrying system by means of earthen and iron pipes is used very largely in removing the liquid waste from the kitchen and slop-sinks, water-closet, urinal, and bath-tubs.

The object of drains is the removal of the liquid waste products from a house rapidly and completely, which if not properly done will produce sickness and an increased mortality. There is no doubt but that defective drains may be, and often are, the means of admitting filth diseases into the house.

Drains were formerly made from brick or stone, and were frequently square instead of round. The square drains are least adapted to the rapid or complete removal of the liquid waste of a house, and are not easily flushed. They were generally made larger than necessary, and were subject to frequent obstruction from the accumulation of solid matter, as a drain of this kind will not readily clean itself. A drain should be egg-shaped or round and perfectly smooth inside. Neither an egg-shaped nor a round drain is easily obstructed, and both are readily cleaned by flushing.

One of the most important questions in treating this subject

¹ Read before the Ohio State Sanitary Convention.

is to reduce the cost to the minimum in the construction of first-class work. Each year adds new means of treating the sewage economically, and the improvements have been carried so far that it is impossible to recommend any one system to the exclusion of all others ; the simplest are very often the best. The number of pipes should be as few as is consistent for the use intended. First-class workmanship should be required in all cases.

The soil-pipe should be of iron, either cast or wrought, and four inches in diameter. It should be carried full size to a point above the roof, where it should have a free opening for the escape of gases, and it should pass several feet beyond the cellar wall before it enters the ordinary sewer-pipe, where a trap should be placed. Too large a soil-pipe is frequently used. A four-inch pipe is large enough for a moderate-sized house, a six-inch pipe for a very large house or mansion, and a nine-inch pipe for large blocks and institutions.

The area of a four-inch pipe is 12.56 inches, and that of a six-inch pipe 28.27 inches, while the area of a nine-inch pipe is 63.61 inches. What would fill a four-inch pipe would not half fill a six-inch pipe, and the flushing power would be reduced in proportion. A four-inch pipe with a fall of one in forty-one will give a velocity of four and one-half feet per second, and discharge 144 gallons per minute, running full. No rule can be given for the fall or inclination of a drain, for that will depend upon circumstances in each case ; but the fall should be a regular one, and at least one foot in fifty to secure flushing without special flush-tanks. House-drains should be so arranged that they will be flushed by the fixtures in use, and not require special flush-tanks for that purpose. Drains should be laid as far as possible in straight lines, and curves should be made of pipes curved at the proper degree. It is sometimes advisable to use curved channel pipes,—*i.e.*, pipes divided longitudinally in half, so that in case of obstruction the interior is readily accessible. Where they pass through important rooms they should be concealed by movable panels hinged like doors. House-drains should always be easy of access, and, where possible, exposed to view. When a house-drain discharges into a sewer that is liable to flooding, it is necessary to provide a tide-valve between the sewer and drain. The ball-valve is probably the best. No drain ought to be laid under a house when it is possible to lay them on the outside. When a drain passes under a house to reach the sewer, extra precautions should be

used to prevent the escape of air or water from entering the soil under the house. Iron instead of stone pipe should be used in such places.

More or less waste matter will accumulate on the sides of waste-pipes and sewers, which will be fouled by decomposition, and the gases thus created will rise to the highest point in the pipes; in order that it may promptly escape, vent-pipes are used to carry it above the house. The drain should be open at both ends, so that a free circulation of air will be maintained through every part of the drain and soil-pipe. This may be done by a properly-constructed trap where the drain enters the sewer, and before it leaves the premises for the public sewer.

Drains should be air- and water-tight, and before being used should be tested. The outlet may be closed and the drain filled with water; if there is a leak, it will be made apparent by a fall in the level of the water; or the peppermint test may be used. This test is made by adding two ounces of essence of peppermint to a gallon of hot water, and pouring it into the opening of the outlet of the soil-pipe; if there is a leak, it may be detected by the penetrating odor of the peppermint.

One of the most essential parts of a house-drain is the trap. The object of the trap is to exclude the air from the house-drain and the house, the latter being the more important.

A trap should be so constructed that it will prevent the breaking of the water-seal by siphonage, evaporation, back pressure, capillary attraction, or leakage; and it should be so constructed that sediment will not accumulate in it. They should be placed close to the fixture and be readily accessible.

Most traps have an opening at their highest point for the attaching of vent-pipes.

The water-seal of an ordinary trap can be broken by siphonage if the pressure of air on the side of the soil-pipe of the trap be diminished, as it often is, by the discharge of another fixture into the same soil-pipe, or by increased pressure the water may be forced into the fixture and the air into the house. By providing a free entrance and exit of air to the trap this break of the water-seal may be prevented.

The ventilating of a trap furnishes means for the evaporation of the water-seal. Numerous traps have been invented to overcome these difficulties. Vent-pipes are condemned by some sanitary engineers as being expensive and unnecessary, and traps

that cannot be siphoned used. There are numerous traps that cannot be siphoned ; some of them are quite elaborate, and but little danger of the water-seal being broken by evaporation. The D trap, the various pot traps, the bottle and globe traps, are objectionable on account of being a receptacle for the accumulation of filth. They do not readily clean themselves, and filth will adhere to their sides and corners ; while the various valve-traps are liable to lose their water-seal by filth adhering to the valve and preventing complete closure.

The S trap, ventilated, and with a deep water-seal, will usually answer all purposes, and is a trap that will scour itself by the discharge of the ordinary fixture.

WATER-CLOSETS.

There are five kinds of water-closets,—the pan-, valve-, plug- or plunger-, hopper-, and washout-closets.

The pan-closet is one of the oldest, and has been very extensively used ; it is found in a large number of the older residences. It is poorly constructed from a sanitary stand-point. It consists of an inverted cone, under which is a shallow pan containing a little water in which the dejecta is received. On raising the handle the pan is swung back into the container, allowing the contents to pass into the trap or soil-pipe. This form of closet is rarely clean. The space in which the pan moves—the container—is a receptacle for the accumulation of foul matter, which makes it objectionable.

The valve-closet is a modification of the pan-closet. A valve is used instead of a pan, which is held in place by a weight. By raising the handle or lever the valve is opened, allowing the contents of the basin to pass into the container. It is but little improvement on the pan-closet.

The plug- or plunger-closet is an improvement on the pan- or valve-closet. The outlet of the basin is generally at one side, and is closed by a plug, while the basin is partly filled with water, which is swept out when the plug is removed. This closet frequently becomes quite foul.

The hopper-closet consists of a deep inverted cone with a water-seal trap directly underneath, which is known as the siphon-trap. The excreta drops into the water of the basin, and when the water is turned on the closet is thoroughly washed. It has no

hidden parts and is easily kept clean, and is one of the best for general use.

At the present time the washout-closet is probably used more than any other. They are of various shapes, and so constructed that a small quantity of water remains in the basin to receive the excreta, which is flushed out of the basin into a siphon-trap below. This is a good closet, but does not present any advantage over the hopper-closet. They are generally noisy when in use, and require considerable water to flush them properly.

Foods of Nations.¹

BY CHARLES H. STOWELL, M.D.,

Washington, D. C.

IT is interesting to study how individuals differ in their tastes for various foods, and also how various peoples differ in their tastes; but it is even more interesting to study the desires of whole nations for certain kinds of food. We are told that the warriors of Homer killed their own pork, not calling upon the butchers to spare them the disagreeable task of slaughter. The Romans were particularly fond of pork, which fondness was retained even to the decline of their empire. The Egyptians declared the hog to be an unclean animal, and fled from it, while the Cretans would not eat of the flesh because they wished to offer it to Venus. The Romans had particular skill in preparing pork, for, it is said, they could impart as many as fifty different flavors to it. They could prepare it so that it would resemble delicately-flavored fish or duck.

As the ox was such a faithful friend to man, it was thought for a long time to be a sin to eat of his flesh. Yet we know that the ox was often roasted whole at the time of the Grecian feasts; but further back than this we read that Moses declared the flesh of the ox to occupy the front rank as a desirable food. Beef appears to have been generally roasted, but sometimes boiled and served with sauce.

Mutton has always been regarded as a desirable food. So fond were the Athenians of the flesh of the lamb that the authorities had to forbid its eating until the animal was large enough to

¹ From Food.

be shorn. Both the Egyptians and Romans highly praised this flesh as a most delicate dish.

The flesh of the ass was used extensively by the Roman peasants, and for a time it was used by both the great and rich. But this soon went out of fashion.

Hippocrates said he was convinced that the flesh of the dog was a wholesome food, and the common people of Rome used it very extensively.

The flesh of the elephant was used at some of the African feasts, while an African traveller said he found the elephant's trunk a very palatable dish ; however, he preferred the foot.

We also read that the flesh of the hedgehog, fox, camel, dromedary, and stag was used by the Greeks and Romans.

We are told that some of the ancients regarded the hen as a bird of ill omen, so they embraced every opportunity to use it as food in order that the number might be diminished ! It is said that a Roman knight discovered a process by which peculiar flavors might be imparted to the flesh while the animal was being fattened. This became so popular that the Roman Council had to forbid this fattening process, as they feared there would not be left a single hen in the empire. We may think that the incubator is a modern invention, but the Egyptians hatched their chickens in their ovens.

The Greeks and Romans were very fond of duck. The whole animal was served by the Greeks, but the more wealthy Romans used the breast and the head as the only parts fit to offer to a guest. One ancient writer said he mixed the flesh of ducks with his food as an antidote against poisons which he feared were being administered to him.

We all know how the goose became endeared to the Romans, and how these animals were kept both in the city and country as guards to the house. The flesh of this animal was a great favorite with the Egyptians. The goose was fattened in the dark in order that its liver might reach a large size. This part of the animal was greatly prized, and by the process of forced feeding it is said that the liver of a large goose could be made to weigh as much as two pounds, while Pliny says that the process could be carried to such an extent that the weight of the liver would almost equal the weight of the rest of the bird. It is related that a queen of France once spent £60 in fattening three geese, as she wished to have the livers both enlarged and of an unusually delicate flavor. The

story runs that Queen Elizabeth was enjoying a meal of goose when the news was brought to her of the defeat of the Spanish Armada. The flesh of this animal is a favorite dish in England on Michaelmas-day.

The Greeks knew nothing about the flesh of the turkey during their successful days, and for many years this animal was looked upon as a great curiosity by the Romans. It is said that a pair of turkeys were exhibited at Athens about the middle of the sixth century, when they excited the greatest curiosity.

The peacock was such a favorite with the Romans that it was thought a banquet or feast was incomplete without it. One Roman emperor is said to have killed a soldier who accidentally killed a peacock. Later it appears a discovery was made that the flesh was very indigestible, so the animals were after this served with all their feathers, to be looked at but not eaten.

We are inclined to make sport of the crow as an article of diet, but the Alexandrians declared there was nothing that could approach the flesh of this bird in delicate flavor.

The Romans were not less fond of fish, carrying their love to admiration. Hortensius had a great fondness for turbot, and it is said he wept bitterly over the death of one he had fed from his own hands. These animals were so trained that they would come at the voice of their master, and they were often decorated with bands of gold. A friend of the Emperor Augustus became so attached to his turbot that he would feed them with the flesh of his slaves, and he did not even first deprive his subjects of their lives. According to one authority, the early inhabitants of Britain did not eat fish, while there were certain laws in existence for many years forbidding the eating of some kinds of fish. Louis XII. had six fishmongers to supply his table, while Henry the Great had twenty-four.

As the oyster is such a favorite at the present time, it is but natural to suppose that it was always a great favorite. In fact, we know that the Greeks and Romans regarded them as a necessary prelude to the hearty meal of the day, at which time they were generally served uncooked. It is said that a Roman made a great fortune by discovering a method by which the oyster could be fattened. It was finally made known that his method was feeding them with honey and wine.

Hippocrates said that boiled cabbage and salt was a specific for the colic, and the Egyptians declared that those children who

were fed upon beans were well educated. The Athenians thought asparagus injured the eyesight, and those who used it would soon be obliged to wear spectacles. By fertilization asparagus was grown to the height of forty feet. Onions and honey were great preservers of the health. But to crown all their work, we are informed that the Egyptians used assafœtida as a chief ingredient for imparting delicious flavors to their dishes.

To come down to a more ordinary article of diet, we learn that the Romans were not satisfied with using bread and milk for a food, but were in the habit of bathing their faces with this mixture, and even wearing a poultice of it on their faces in order to have a clear complexion. It is said that the Empress Poppæa always took a daily bath in milk, for which purpose she had in her stables 500 female asses.

Eggs have always been used for food. One authority says that the Egyptians could cook eggs without a fire. They placed the egg in a sling and turned it so rapidly through the air that the heat resulting from the friction was sufficient to cook it to just the required extent.

Although Cato is best known as a philosopher, yet he was also a good cook, as is evidenced by the following recipe which he has left to us: "Crush two pounds of cheese; mix it with a pound of rye flour in order to make it lighter; throw in nearly half a pound of wheat flour, one egg, and stir, mix, and work into a paste; form of it a cake, which you will place on leaves and cook in a tart dish on the hot hearth."

Right Age at which to Marry.¹

BY E. E. THORPE, M.D.



IN the absence of evidence to the contrary, a good time at which to marry would seem to be that particular occasion in life when inclination and opportunity co-exist; but as in many cases there is evidence to the contrary, the gist of the matter seems to be its consideration, and the attempt to discover the time and condition of life at which the minimum of trouble will follow.

¹ From The Healthy Home.

Relative to whether marriages are made in heaven there may, perhaps, be a difference of opinion, but that their career subsequent to making pertains in great measure to this earth there can probably be no doubt ; and so to the conditions of this world they must be adapted. Probably there is no social obligation more primary and fundamental than that resting upon each individual to make himself self-supporting and able to care for those who, in the natural order of things, rightfully look to him for maintenance. And so no person can rightly marry unless he has good reasons to believe that his family will be the recipient of income sufficient to meet the obligations that are reasonable to expect. Errors of judgment may be made in regard to this that are inevitable, implying no moral fault, but the question should be considered with the greatest care, for mistakes in this often result in unhappy marriages, and usually in unhappiness and wrong to those immediately concerned. It is well to consider this at first, for no age at which it is not provided for can ever be a right one at which to marry, and hardly any age in which it is truly settled can necessarily be wrong. Whether we like it or not, there should be a kernel of practical hard-headedness in the midst of the veriest romance.

Putting aside considerations which may pertain to all times of life, the age at which marriage is wisest must be considered from physical, mental, moral, and social points of view. Upon the physical side there is this to be said : marriage should take place only after maturity, and, especially in the woman's case, delay after maturity is not desirable. Marriage in immaturity involves imperfect development and physical incapacity to perform the various duties of life. Life becomes stunted, contracted, in a measure wrecked. But it is best that perfect maturity sustain the burdens that are normal to it. And a woman's life is easiest and most healthy if the childbearing period is begun in early maturity. The mental side of the question likewise presents special dangers concerning too early marriages and too great delay. Immaturity of views involves the danger of radical changes in later life whereby a certain type of character pleasing at first ceases to be so. In this way husband and wife "grow apart,"—one of the saddest things in life. As in the physical person tissues should be fully and firmly formed, so in the mental there should be steadfastness sufficiently developed to present some warrant for believing in a continuance of a certain given condi-

tion of mind. If marriage is quite late in life the mind may suffer in some degree because of bodily functions unperformed ; but more important than this cause is the mind's want of intimate association with mind of the other sex,—its social desires unsatisfied and the paternal or maternal instincts ungratified ; its too great isolation. The condition is in a measure social and morbid.

The ethics of the question point in the same way. Morality is not subserved by marriage in immature life, but it is in danger immediately that time is reached and marriage does not take place. Many a man or woman is saved from a valueless or worse life by the possession of the purpose and fulness of life that only marriage can give.

If sociology teaches anything, it is that the family is the social unit. As soon as the elements that make up that unit can wisely be procured and made into the family the better. Sobriety of life, industry, and intelligent economy are all best thus attained, and all these go to make up the strength, the health, and general well-being of the community. Probably women best meet the above conditions at 22 or 23 years of age, and men when three or four years older.


One of the most pleasing things in the world is the association of parents and children when the former are not yet old and the latter are well along towards maturity. There is a certain happy companionship which otherwise cannot be. What is happier than for the parent to live to witness the child's career in full manhood or womanhood while he is in full possession of his faculties, and for sons and daughters to have healthy, vigorous parents during a large part of their lives? Is there anything pleasanter in a child's memory than that of the indulgent love of grandparents? If so, it is probably the fond grandparents' childlike happiness. But late marriages preclude all this, and rob life of some of its joys.

Let not any reader think that an observance of what is here written will insure a happy marriage. It will not. But whoever will study the above with some care, get at its full best meaning, and then marry and fail, will undoubtedly be sustained and consoled by an abiding consciousness of having failed a "blessed martyr."

Hygiene in Chicago.

BY ARTHUR R. REYNOLDS, M.D.,

Commissioner of Health of the City of Chicago.

HICAGO'S mortality-rate has always been low when compared with other cities. This is due without doubt to our fortunate location between the broad prairie on one side and Lake Michigan on the other, giving free play to the breezes that dilute and sweep away the impurities of the air.

The total number of deaths for the year is 27,095, with an estimated population of 1,600,000, which gives us a death-rate of 16.93 per 1000, the lowest, with one exception, in fifty years. It may be claimed that our estimate of the population is too high. Our very reliable school census of May 1, 1892, gave us 1,438,010, and, adding to this our usual increase of 12 per cent. per annum, gives us a population on May 1, 1893, of 1,610,571.

When we consider the vast multitudes who were with us during the World's Fair months, and the further fact that 2567 bodies were shipped beyond the city for burial, showing that they did not belong to us, though all are added to the list of Chicago's dead, it will be seen that we are far below the figure rather than above.

In seeking a cause for our low mortality-rate it has been said that Chicago was populated largely by people who migrated here from other places in the vigor of their years, leaving behind them their aged and more frail relations. If this logic be good, and we really have more than our share of people between the ages of 20 and 45 years, it would apply equally to many American cities; but it would be well to remember that this is the most fertile period of life, consequently we should have more than our share of children to swell the mortality list, and the record shows that 12,207 deaths—nearly one-half the total number—were of persons under 5 years of age, and 5952 were under 1 year.

That life may here be extended beyond the allotted span is shown by the fact that 1209 deaths were between the ages of 70 and 80 years, 444 between 80 and 90, 51 between 90 and 100, 1 at 105, and 1 at 110.

Pulmonary ailments, pneumonia, consumption, and bronchitis, which are generally conceded to be dust-borne diseases, carried away 6102, serving to teach us that floors and streets should be thoroughly sprinkled before sweeping, and the sweepings immediately gathered and burned. Three thousand one hundred and seventy cases of scarlet fever, with 336 deaths, and 2600 of diphtheria, with 959 deaths, were reported. Warning cards were posted upon the houses and the houses disinfected by fumigation after the disease had spent its force.

The railroads are credited with 399 deaths, yet one of the main lines east from Chicago that use the block system of signals claims to have carried 328,000 passengers during the World's Fair period without so much as injuring one individual.

Six hundred and sixty-seven succumbed to typhoid fever, as against 1498 in 1892. This marked decrease in this disease may properly be attributed to the improved character of the water-supply since the opening of the Four-Mile and the Lake View tunnels and the closing of the polluted shore intakes at Chicago Avenue and in Lake View. We may expect still greater improvement in this disease next year, as we are now about to receive the first fruitage for the money expended by the Board of Drainage Trustees.

The deflection of the channel of the Des Plaines River, at Summit, has just been completed, and will prevent the overflow of freshet water from that stream into the Ogden ditch and thence to the Chicago River and the Lake. This work of the Drainage Board, together with the active operation of the Bridgeport pumps, will prevent almost all current in the river towards the lake, except in times of unusual rainfall, and tend greatly to protect our drinking supply.

The establishment of a Bureau of Milk Inspection early in the year has done much to prevent disease, particularly among children, for bad nutrition is to blame for the large infant mortality. Eleven thousand three hundred and ten samples of milk have been analyzed, and 3232 licenses have been issued, making a revenue for the city of about \$30,000. In September the Council, at our suggestion, made the Milk Bureau a part of the Department of Health, and gave us authority to establish a municipal laboratory, so we will now be able to make more extended analyses of water, ice, and food products generally in addition to milk.

We have had 130 cases of small-pox, with 19 deaths. Without exception, all those who died had not been vaccinated, while all who were vaccinated in youth and a few who were not vaccinated at all recovered.

Every month in the year has contributed one or more cases, except March. December, however, gave us fifty-eight. When compared with other outbreaks of this disease, the number at present is very small, due, first, to the very important regulation in force for the past twelve years by the Board of Education, requiring all pupils to present a certificate of successful vaccination as a requirement of admission; second, to the prompt isolation of all cases by our department and the earnest co-operation of the medical profession; and, third, to the thorough vaccination we have done, and which was made possible by the prompt action of the Finance Committee and the City Council in voting us the necessary money.

One hundred and twelve thousand nine hundred and ten vaccinations have been made, 60,000 of which were done in December.

One million three hundred and fifty thousand three hundred and thirty-seven pounds of meat unfit for food have been condemned and sent to the rendering tank.

By the following it will be seen that our Tenement-House, Factory, and Smoke Inspectors have not been idle.

Plans for new buildings filed	7,025
New buildings examined	5,489
Houses examined on complaint	16,740
Work-places examined	16,610
Number employed	300,202
Notices served	13,250
Abatements	10,310
Defective plumbing examined	2,380
Defective drainage examined	1,075
Offensive catch-basins examined	1,085
New sewers constructed	850
Traps applied	1,025
Plumbing work ventilated	580
Rooms and work-rooms ventilated	150
Leaky roofs repaired	150
Privies cleaned	4,159
Privy-vaults abolished	350
New water-closets constructed	220
Yards and premises cleaned	1,750
Miscellaneous	980

In this branch of our work we do battle with the noisome privy-vault. It is an intolerable nuisance, a festering source of soil and air pollution, a constant menace to the integrity of our inspectors by the opportunity offered for collusion with night scavengers. Weary midnight vigils of our officers have detected scavengers dumping wagon-loads of night-soil into the sewers in the outskirts, and from the appliances confiscated for facilitating the work it is fair to presume that nearly half the soil so collected from vaults finds its way to street sewers. The Council will shortly be asked to pass an ordinance abolishing this abomination on streets where the sewer is laid, and from the favorable expressions of many aldermen we have little doubt of its passage.

Three thousand three hundred and seventy-seven violations of the smoke ordinance have been abated, some by devices to consume smoke, but generally by using hard coal in place of soft.

Two thousand four hundred and eighty-two railroad engines entering the city have smoke-consuming devices. The total cost to the city to bring about this large number of abatements is less than \$4000, and we invite comparisons with Smoke Prevention Societies as to moneys expended and results obtained.

In the enactment and enforcement through this department of the workshop law, commonly called "sweat-shop law," great good has been accomplished by forcing employers of this class of labor (largely women and youths) to furnish properly-lighted and ventilated shops to work in, and sufficient lavatory accommodations. There are 800 of these workshops.

Although many thousand men and women have been forced into idleness since last May, thanks to the generosity of trades unions and the substantial and business-like charity of our citizens generally, not one case of disease and death has been reported as due to starvation.

Another new feature with great sanitary possibilities is the free public bath just completed and soon to be opened to the public at 192 Mather Street.

On an average we receive 100 communications by mail daily, one-fourth of which are anonymous. All that pertain to our work are answered either by a personal visit or by letter.

The Geography of Heart-Disease.¹

BY EDWIN M. HALE, M.D.,

Chicago, Ill.

AFTER considerable investigation of this subject I have arrived at the conclusion that any attempt to define the geographical limits of all heart-diseases is almost an impossibility. Idiopathic inflammatory cardiac diseases are very rare, and when they do occur may arise in any climate and in any country. Inflammatory diseases of the heart are generally secondary, or are caused by some constitutional disease. Therefore we are obliged to ascertain the geographical limits of those diseases which cause them. This we can do with considerable accuracy.

The constitutional diseases which are most likely to cause cardiac disorders are: (1) rheumatism, and (2) Bright's disease, to which may be added, as occasional causes, la grippe, scarlet fever, and diabetes.

In comparing the mortality statistics of rheumatism, Bright's disease, and diabetes, I find that the same climatic influences induce them all. The statistics collected by Dr. C. W. Purdy are very instructive. He found that Bright's disease was most common in the following States (I give them here with the percentage of deaths from Bright's disease compared with deaths from all other causes):

New Jersey	28.55
New York	20.13
Connecticut	14.48
Massachusetts	13.00
New Hampshire	12.70
Maryland	11.52
Vermont	10.33
Maine	9.34
California	7.02
Michigan	5.06
Minnesota	3.86
Ohio	6.00
Pennsylvania	7.68

¹ From the Hahnemannian Monthly.

(Table—Continued.)

Wisconsin	4.99
Illinois	4.73
West Virginia	4.46

It will be observed that all of these States lie north of "Mason and Dixon's line." It is in these States that statistics show that rheumatism and Bright's disease are most prevalent.

The climatic condition of these States consist of coldness and dampness mainly, and often of high altitude. We will now glance at those States where Bright's disease is less frequent.

Arkansas (percentage to 1000)	1.95
Georgia	1.67
Indiana	3.46
Iowa	3.45
Kansas	2.50
Kentucky	3.28
Mississippi	2.60
Missouri	2.89
Nebraska	1.68
North Carolina	1.85
South Carolina	2.47
Tennessee	1.11
Texas	2.14
Virginia	2.95

Florida is not given, but I believe from my observations and interviews with physicians of that State that the percentage is less even than in Georgia and other Gulf States. You will observe the contrast between West Virginia, which is mountainous, very damp and cold, and East Virginia, which is warmer, lower, and less humid. The percentage in the former is double that in the latter. The statistics of rheumatism conform with that of Bright's disease in the Southern States; as in West Virginia, with its coldness, moisture, and high altitude, there rheumatism is more prevalent.

The following grouping was suggested by Mr. Gannet, the geographer of the census. It gives clearly the regional geography of Bright's disease :

DEATHS FROM BRIGHT'S DISEASE IN EACH 1000 DEATHS IN
THE UNITED STATES FOR 1880.

In Grand Groups, showing Climatic Features and Population.

Region.	Ratio to 1000.	Mean Tem- perature, F.	Mean Rainfall in Inches.	Elevation in Feet.
1. North Atlantic Coast region . . .	17.38	40-50°	40-50	100 to 500
2. Middle Atlantic Coast region . . .	19.73	45-60	45-55	Below 100
3. South Atlantic Coast region . . .	2.59	60-65	50-60	"
4. Gulf Coast region . . .	9.41	70-75	55	"
5. Northeastern hills and plateaus . .	11.20	35-45	35-45	500 to 2500
6. Central Appalachian region . . .	8.23	40-45	35-40	Above 500
7. Northern lake region . . .	7.17	45-50	30-40	200 to 300
8. The interior plateau region . . .	8.32	45-50	40-45	100 to 200
9. The Ohio River belt . . .	5.83	45-55	45-50	300 to 1000
10. Southern Centr'l Appalach'n region	2.63	45-55	45-50	1000 to 2000
11. Southern interior plateau . . .	2.99	67-70	50-60	Below 1000
12. South Mississippi River belt . . .	3.14	60-65	50-55	100 to 300
13. North Mississippi River belt . . .	3.73	40-50	30-50	Above 500
14. Southwestern central region . . .	1.97	60-70	35-50	100 to 500
15. Central region (plains, etc.) . . .	3.70	50-60	40-45	500 to 1500
16. Prairie region . . .	3.59	50-55	25-40	About 1000
17. The Missouri River belt . . .	2.80	40-55	20-40	500 to 1000
18. The Northwestern region . . .	5.21	40-50	30-40	Above 1000
19. Pacific Coast region . . .	8.72	45-65	20-60	100 to 2000
20. Region of Western plains . . .	3.92	45-65	10-20	1500 to 5000
21. Cordilleran region . . .	3.04	50-60	10-20	4000 to 10,000

Turning to the statistics of diabetes (glycosuria), we find that it agrees very nearly with that of Bright's disease.

The States where it is most prevalent are—

Vermont (percentage to 1000)	6.36
Maine	4.41
Connecticut	3.37
Ohio	3.23
New York	2.20
Illinois	2.11
Indiana	2.72
Iowa	2.42
Michigan	2.68
Wisconsin	2.81
Massachusetts	1.96
California	1.99

The States in which the disease is least prevalent are Alabama, Arkansas, Georgia, Kansas, Kentucky, Louisiana, Mary-

land, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, North and South Carolina, Pennsylvania, Texas, and Virginia. In these States the death-rate ranges from about .60 in Alabama, Arkansas, Minnesota, and Tennessee, to an average of 1.50 in the other States.

The regional geography of Bright's disease and rheumatism is very similar to that of diabetes. In other words, the mortality increases as we go from the Gulf and Southern Atlantic States to the Northern and Middle States, the region of the North Atlantic Coast, and shores of the Great Lakes, and the North Pacific States.

Different parts of each State are not equally causative of rheumatism or Bright's disease. I call your attention to the difference between Virginia and West Virginia. The same difference is probably found in those States which are partly flat and partly mountainous. In the regions of highest altitude heart-diseases will be more frequent than on lower ground, especially in the Southern States. Even in the Northern States, I think, the same difference will obtain. There may be some exceptions to this rule, as when the high lands are dry, as in the mountains of North Carolina, Georgia, New Mexico, and Arizona.

The geography of functional diseases of the heart, whether arising from some irritation or lesion of the cardiac nerve-centres in the brain and spinal cord, in the nerves of the heart itself, or reflexes from irritation of other and remote organs, cannot be given with much accuracy. I can only suggest that all functional affections, local or reflex, to which the heart is subject, are more common in large towns and cities than in the country and rural villages. This is due to the excitement and competition in all kinds of business, and the rush and worry of the intense social life; to which may be added the prevalence of dyspepsia, hepatic disorders, and affections of the female reproductive organs. I believe it can be substantiated that these functional disorders are more common in Northern than in Southern cities, and oftener found in the cities of high altitude than in those on the plains.

In my studies of English and Continental authors, I find that the cold, humid, and high altitudes in those countries are considered to be the chief habitat of inflammatory diseases of the heart. I cannot find any definite information as to the localities where functional disorders most prevail, but I see no reason why the chief cities of England and the north of Europe should not be as

much a source of these disorders as in the United States. As for the geography of heart-disease in Asia, Africa, Australia, and South America, no statistics are obtainable by me, but I believe the same laws prevail in those countries as in North America. In a paper of this scope I am not supposed to give any practical deductions which would apply to the treatment of cardiac disorders. Nor is it really necessary, for the inference is plain that, as an aid to treatment, the sufferer from cardiac diseases should seek those regions and climates in which Bright's disease and rheumatism are least prevalent.

A review of these investigations substantiates the following conclusions:

(1) That the chief features of climate in the United States which most strongly tend to increase the death-rate from inflammatory, acute and chronic, heart-disease are cold, moisture, and changeability of temperature.

(2) That the elements of climate which tend in the greatest degree to decrease the death-rate from such diseases are warmth, dryness, and equability.

(3) That cold most markedly increases the mortality from heart-disease when associated with moisture, a comparatively low temperature being well borne if the atmosphere is a dry one.

(4) That a comparatively high degree of humidity of the atmosphere does not markedly increase the mortality from heart-disease if accompanied by warmth and equability.

(5) That the most unfavorable residence localities for patients afflicted with heart-disease in the United States are comprised within the Atlantic Coast region and Northeastern hills, which include the States of New Jersey, New York, Connecticut, Massachusetts, New Hampshire, and Vermont; also those regions of high altitude which comprise the States of Colorado, California, and Oregon.

(6) That the most favorable residence localities are chiefly within the Southern interior, and especially include the States of Tennessee, Georgia, North Carolina, Arkansas, Texas, Florida, Arizona, and New Mexico.

(7) Finally, a practical lesson may be learned from these investigations as follows: That, since climate so decidedly influences the mortality from heart-disease, those who are afflicted with the disease or possess strong hereditary or other tendencies thereto should wear such garments as most directly tend to neu-

tralize the evil influences of climate over the disease,—viz., those combining the minimum power of radiation of body heat with the highest hygroscopic properties ; and since *wool* possesses these qualities to a degree unapproached by any other textile, all-wool garments should be worn next the skin throughout the year.

Another deduction relating to functional disorders of the heart may be stated as follows : In view of the fact that these disorders are more frequent in large towns and cities, especially in high altitudes and latitudes, it behooves physicians to order such patients whose disorders are not relieved by medicine or hygiene to remove to the country or small villages in those regions which possess a warm, equable climate, in warm valleys and plains of low altitude. As for those diseases which are universal,—namely, la grippe, scarlet fever, typhoid fever, and certain specific maladies,—they have no geography. We can only say that they are more prevalent in large cities along lines of travel.

In this we may also include cases of heart-strain from undue exertion, the abuse of alcohol, and the excessive use of coffee, tea, and such drugs as quinine and the so-called antipyretics.

The Offspring of Young Mothers.

At the Congress of Hygiene, Dr. Korosi, of Buda-Pesth, stated that the proportion of deaths among children from weakly constitutions, or maladies traceable to the mother, was twice as large among the children of mothers under twenty as among the children of mothers over thirty. The author of this statement seemed pretty sure of his facts, since they were consequent upon a comparison of several thousand cases. His investigations on the subject showed further that the healthiest offspring were born of mothers between twenty and thirty, united to husbands between thirty and forty. In Hungary fifteen per cent. of the number of marriages show that the brides are under twenty years of age, and in England twenty per cent.

Appointment.

Dr. Z. Taylor Emery, Health Commissioner of Brooklyn, N. Y., has appointed Mr. Wm. Paul Gerhard, C.E., to the position of Honorary Consulting Sanitary Engineer to the Department of Health of the city of Brooklyn.

THE ANNALS OF HYGIENE

PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
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EDITORIAL

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

Our State Board of Health.

THE Hon. Robert E. Pattison is no longer Governor of Pennsylvania; hence we assume that his most bitter political opponents are now cheerfully willing to admit that this State never has had, and never can have, a more thoroughly "level-headed," honest, conscientious, conservative chief executive than he who has just vacated the position. During his two terms of office Governor Pattison has clearly demonstrated the fact that he neither says nor does anything merely because some one has so asked him to do or to say, unless he himself is thoroughly convinced of the wisdom of so saying or doing.

During Governor Pattison's first term the State Board of Health was called into existence, and we are personally cognizant of the fact that he is thoroughly familiar with the life history of this board; he realizes its possibilities; he appreciates its importance; he is well informed in regard to the legislation that has been granted to it. Recognizing his salutary conservatism, read what the Governor says on the subject in his last message to the Legislature.

"STATE BOARD OF HEALTH.

"Contrasted with the annual appropriations of other States, made available for their respective boards of health, the \$5000 appropriated by Pennsylvania, with 5,258,014 population and 46,000 square miles of territory, seems very inconsiderable. Especially does this appear from comparison

with Massachusetts, which expends \$111,300, Texas \$61,000, Illinois \$49,000, and with other of the leading States appropriating sums four- and fivefold that of our own. The effectiveness of a State Board can, of course, never be rightly measured by operations thus restricted. Happily, we have been spared from the great calamities or sudden emergencies demanding such operations; but if we are to be adequately prepared for contingencies, which are always imminent, the State Board should by reasonable allowances be put upon a footing of preparation at least. The lately-enacted law providing for borough boards of health has had such general recognition and approval as to justify the recommendation of like legislation for township boards. The collection and arrangement of the vital statistics of the State, the establishment of hospitals for contagious diseases near towns and cities, a State chemical and bacteriological laboratory are among the subjects of recommendation by the board. They so intimately concern the well-being of the people as to entitle them to your careful inquiry and intelligent action.

“The wisdom of the appropriation by the Legislature of 1893 of \$50,000 as an emergency fund for the use of the health authority of the State has been vindicated. Although the amounts expended, in consequence of the floods of 1894, have been but a small portion of the appropriation, it is recommended that before the balance be allowed to lapse into the State treasury, another and like appropriation be made so as to fully prepare this important department of the State government to meet any emergency which may arise.”

The editor of this journal is no longer a member of the State Board of Health, hence he cannot be accused of self-interest when he joins in Governor Pattison's recommendation to the Legislature, and he can freely state the situation. The position of the State Board of Health of Pennsylvania is such that every *manly* man in the State ought to blush with shame. The board consists of six members and a secretary,—seven in all,—and, with the exception of the secretary, these men *serve the people of the State for nothing*; and the secretary receives a miserable little pittance of \$2000 per year. Some of our readers may think this a good salary; but let me tell them that men qualified to properly discharge the duties of secretary of a State Board of Health do not grow wild on bushes, and when found are worthy of better recognition. A very wealthy and successful business-man of Philadelphia, a man of excellent business sagacity, speaking to us recently of the present secretary of the State Board of Health, said, “If he would only let this infernal hygiene business alone, and devote all of his time to his practice, he would make \$20,000 per year.” Because this man is willing to serve the State to his own personal detriment, is it *manly* for the people to allow him to

do so? It may be business-like, but, we ask again, is it *manly*? Is it fair to ask six prominent physicians, engineers, and businessmen to be ever ready to sacrifice their personal interests, not only without compensation, but without even the satisfaction of having the means wherewith to make effective their philanthropic instincts? Finally, is it common sense to intrust the health of 5,000,000 persons to this board, and to give it \$6000 to work with?

Either we should or we should not have a State Board of Health. If there is any justification for its existence, then it should be properly equipped financially; if it is not to be properly equipped financially, then it had better be legislated out of existence; and a proper financial equipment means an appropriation of \$50,000 per year.

There is a silver lining to every cloud, it is true, and we are happy to feel that the cloud which will, as usual, hang over the Legislature when the State Board of Health asks for an increased appropriation will have its lining in the person of the Honorable Speaker of the House, whose frank, honest, pleasant smile and face will encourage the members of the board to fight against the frowns of disapproval which, we trust, will not be many.

Speaker Walton is a friend of sanitation; he has proved himself to be so, and the people of the State owe him a debt of gratitude therefor; and it is a fortunate thing that the State Board of Health has such a good friend so high in the councils of our legislators.

Let us beg of this Legislature to realize the really ridiculous position in which past Legislatures have placed and maintained the State Board of Health, and to give it an appropriation upon which it can live an active life; to treat it with as much liberality and consideration as our sister States accord to their boards.

Foot-Ball versus Golf.

IS it because of the intensity, so to speak, of the American disposition that games and sports of a violent, dangerous nature, harrowing to the nerves of the participants and the spectators, damaging to the vital integrity of the players, and with no good end to justify their existence; is it because of the abnormal nervous tension that our abnormal methods of life have brought about that this class of sports is so popular?

This question is suggested to us by the relative positions held by foot-ball and golf in the estimation of the American public. It is hard to divest one's self of prejudice and speak calmly when before us rises up the spectacle of a brutal, unnecessary, dangerous, unjustifiable, even *fatal* warfare between two sets of supposed young gentlemen, witnessed by a \$40,000 throng of so-called refined, civilized, cultured, intelligent men and women, who, when you speak to them of *golf*, shrug their shoulders and disdainfully reply that it is "so tame."

We admit that to the average individual there is something instinctively fascinating (though his better judgment may recoil therefrom) in the presence or possibility of danger, and this it is, we doubt not, that accounts for the popularity of foot-ball. But should we, as intelligent, reasoning, supposedly self-controlling animals, allow the brutal instinct within us to overcome our judgment so far as to cause us to lend such unparalleled support and encouragement to a game that is universally admitted to be injurious and dangerous?

It does seem a pity that such wonderful people as we Americans are should have so little common sense: we work like fools; we play like brutes; we die like those who value not life.

In England, cricket and golf, two magnificent forms of physical exercise; in America, base-ball and foot-ball, two most brutal forms of smokeless warfare, are the national sports, so to speak.

Again and again have we, and yet still again and again will we be compelled to remind the American public that *motion*, not *strain*, means healthful physical culture.

We cannot conceive of a more healthful pastime than golf, compelling one, as it does, to walk for miles in the open air, the walking made pleasant by an object in view; but we fear that golf will never attain, in this country, the popularity that it merits, because there is no danger to life or limb in this game.

"John Bull" knows how to fight, but he fights not for sport; his good sense tells him that *healthful play*, not *disabling strain*, will keep him in the best condition for fight when the necessity for fight arises.

The editor of this journal is not yet old enough to be called an "Old Fogey;" but he is out of his "*teens*," and has reached the age when the drafts signed by the excesses of youth are commencing to mature and demand payment, and, in the enjoyment

of good health, he is daily thankful that in his college days football and base-ball were not played as they are to-day.

The young college men who are doing themselves irreparable physical injury, thoughtlessly, heedlessly, under the spur of excitement, of immature enthusiasm, and of a misconception of the true meaning of physical culture will in a few years be inaugurating the coming generation and transmitting to them the physical defects that they have brought upon themselves. This is a most serious thought that should be well considered by those who have these young men in charge. We are not preaching against physical culture; we would like to see a golf club organized wherever possible; but we do feel that older heads should devise some means of preventing the enthusiastic young men from ruining themselves and perpetuating their thoughtlessness in the infirmities of the generation yet to come.

Keeping Warm.

AN earnest little woman, hard-working and faithful to all her domestic duties, has just left our office, and during the course of our consultation she remarked that she was so chilly whenever she went out of doors. To our reply that this was because she did not go out enough, she answered that she went every day to the store, which was about five hundred feet from her home, and admitted that the greater part of the day was passed either close to a hot stove or in the carbonic-acid-laden atmosphere of a house the windows and doors of which were seldom opened. This poor little nervous woman (who has been a patient for some years, and in whose welfare we feel a sincere interest because we believe her to be a well-meaning little body, a good wife, and a good mother) was cheerfully willing to pay us for writing a prescription, the druggist for compounding it, and ready to take any quantity of nasty drugs; but when we quietly suggested that she should walk daily two or three miles in the open air, she smiled at our simplicity in imagining that it was possible for her to find time for this *seemingly* injurious pastime,—injurious because it was when she went out that she felt cold; and now the editorial mind is greatly disturbed because the wife of this editor (who is writing this editorial for him, and into whose mind he has been for many years trying to plant the seeds of hygienic truth) says that this little woman is right.

We are fully alive to the fact that this same verdict will be given by the majority of human beings, and that it will receive nearly the unanimous endorsement of all women ; yet it will be, we are sure, only an *impulsive* endorsement, as we have too much regard for the intelligence of humanity to believe for a moment that one not bereft of reason could seriously insist that it would be impossible to devote one hour out of the twenty-four to outdoor exercise. Such a practice might, it is true, delay the ultimate hanging of curtains, scrubbing of floors, dusting of bric-a-brac, and the thousand and one little æsthetic as well as necessary *in-door* occupations of the dutiful woman's life ; it might, we say, delay for an inappreciably short time the period at which these duties would be accomplished, but to say that it is *impossible* to spare this small amount of time from household duties is certainly supremely, if not sublimely, ridiculous. We have written so much upon the subject that to us it is really almost tiresome to feel called upon to be continually reminding human beings how it is that the heat of their bodies is maintained. The temperature of a healthy human being must be always $98\frac{2}{5}^{\circ}$ F., no matter if the outside temperature be down to 20° below zero or up to 212° F., if such were possible. If we place a thermometer in the mouth or under the arm of a healthy individual, it will invariably register $98\frac{2}{5}^{\circ}$ F.

When you burn coal in the stove carbon unites with oxygen, and one of the results of this union is the production of heat ; identically the same process takes place within the body. The heat-producing mechanism of the body works automatically, just a sufficient amount being produced to keep the temperature of the body at the proper standard ; should, for any untoward reason, the production be excessive, it is regulated by radiation from the surface of the body. Now comes in a very important point, one that, while we are tired of enumerating, seems to be ever forgotten : *an absolute essential for the proper performance of any function of the body is USE thereof*, and the heat-producing function is no exception to this absolutely universal rule. Nature abhors idleness and loves activity, and she always gradually evolutes out of existence that which is no longer of use in her grand designs of humanity.

Now for our practical application : have we not gradually led our readers up to the point of anticipating our assertion that he or she who makes it a practice of maintaining the bodily heat by

the agency of artificial heat from artificial stoves will gradually bring about a degree of lessened functional activity of the natural stove within that will render it unequal to the production of the amount of heat necessary to maintain the normal temperature of the body when this body is suddenly exposed to the out-door temperature of a cold day in fall or winter?

CARBON, OXYGEN, USE: these are the three absolute essentials for the production of animal heat, and is it not clearly evident that one who passes nearly the whole of his life in the artificially-heated atmosphere of a house can procure but one of them in abundance,—viz., *carbon*,—which of itself alone is not only useless, but is a poison as well?

A whole book could be readily written upon this subject without exhausting it, but we think that we have written enough to prove, *even if we do not convince*, that the only remedy for the chilly sensations of those who are constantly housed is a recourse to an abundance of out-door air and exercise.

The Female Figure.

IN our December issue we had something to say about the influence of tyrannical dress in causing deformity of the female figure and disease of the female organs. We made reference to "gynæcologists," and explained that they are physicians who devote themselves specially to diseases of women. Now we find the editor of the *American Journal of Gynæcology*, commenting upon the anatomical aspects of the entertainment known as "Living Pictures," using this vigorous language:

"In four of the largest and best-equipped exhibitions of 'living pictures' in New York City during last summer there were but three women representing the nude at whom an anatomist could gaze without a shudder. And, moreover, of these exceptions two approached the male type. They were exceptions because their limbs presented a proper proportion to each other and to the head and trunk. Of the others, the physical malformation was pitiful and disgusting. Large head and small trunk, immense thighs and small feet and ankles, rotund thighs and small arms, long arms and short legs and large feet, narrow hips and broad shoulders and protruding bellies, broad and full hips and narrow shoulders, small hips and narrow chests,—these were the combinations, more or less marked, in all of them.

“If we now remember that New York is one of the great cosmopolitan cities of the world ; that she is the market of this country ; that it was the intention and endeavor of the management of these exhibitions to present the nearest approach to the artistic type of physical proportion ; and, finally, that the available material was enormous and representative of a cosmopolitan country, the conclusion forced upon us is as sad as it is serious. It means that the clothing of woman, among us at least, no longer conceals her loveliness, but hides her ugliness ; is no longer a cloak of modesty, but a cover of deception.”

Continuing, the editor lays the blame for this sad state of affairs upon the gynæcologists, whom he arraigns for not sufficiently sounding a warning as to the pernicious influences of modern female costume. We can hardly agree with our *confrère* in this idea. Women are being continually warned, both in print and in private, of the injury they are doing themselves ; in most instances they are not ignorant of what they are doing ; but they care not. It is an undoubted fact that fashion rules the feminine mind, and woman will dress in accord with the dictates of fashion, be the results what they may. Gynæcologists may have many sins to answer for, but we do not think that lack of warning to woman on the folly and danger of fashionable dress will be found on the list.

Small-Pox.

THE frequency with which the daily papers are publishing reports of small-pox from various portions of the country is cause enough to make us pause and reflect. There was a time, but a few years ago, when it was the exception to read of the presence of this disease ; there was a time when a whole year would elapse in this city without one case. Now, under date of December 18, 1894, the secretary of the State Board of Health gives us the official information that there were at that time forty cases of small-pox in this city. It would seem that the disease is not now of so virulent a type as in by-gone times, but why this lighting up of the flame that seemed so nearly smothered ? We have a notion that the people have grown somewhat lax and careless about vaccination, and that in this fact is to be found the explanation of the somewhat increased prevalence of small-pox. The comparative scarcity of the disease for some years resulted, we

think, in a carelessness about vaccination that enabled the foe to gain strength for a fresh and more vigorous onslaught. Those who do not believe in the protective efficacy of vaccination are so prejudiced in their disbelief that they are not open to argument, hence we do not appeal to this class; but those who believe in it, or who, having no fixed belief one way or the other, are guided by the advice of the physician,—these people, hearing so little of the disease, have, we fear, become negligent; possibly even physicians themselves may have been so influenced. Let us look out that our indifference does not give to the disease the opportunity of regaining some of its old-time vigor.

Moderate Drinking.

JOSEPH F. EDWARDS, A.M., M.D.,
Editor of the ANNALS OF HYGIENE.

DEAR DOCTOR:

I HAVE hardly, if ever, been more surprised than on reading in your periodical, without note or comment, on page 58, the article on "The Influence of Alcohol on Human Life," January, 1895, No. 1. I am now in my 80th year. In looking back to those who were young with me I can see clearly that the total abstainers, as a rule, have far outlived those who drank intoxicating drinks at all, and a number are now living and well, whereas scarcely any of the drinkers are now living. I herewith send you the testimony of Hon. Chauncey M. Depew, one of the most prominent men in this State, as to his experience, and I trust you will insert it in your periodical. I also send you the testimony of the *Medical Pioneer*, of London, from which you see how untrue is the representations published in your periodical. I also send you testimony as to the results of life insurance companies. Now, as your periodical is devoted to hygiene, I can but hope that you will insert all that I now send you, so as to counteract in a measure the great injury which can but result from the publication of such an article so full of false representations, which can but encourage vast numbers of your young men, and others, in habits which will lead many of them down to wretchedness and sorrows untold.

Truly yours,

JOHN ELLIS.

The gentleman who writes this letter—a physician in his 80th year—commands our respect to such a degree that we cheerfully give place to his communications. The note referred to in our January issue was published *without comment*, because, not coinciding with our own views on the subject, yet emanating from such a pre-eminently respectable and responsible organization as the British Medical Association, we felt that the statement deserved

publication, at the same time that we felt that our individual opinion would not weigh much against the utterance of this great association. We therefore gladly welcome the explanation of this seemingly astounding statement, which Dr. John Ellis sends us from the *Medical Pioneer*, of London, as follows :

“ A PRACTICAL LIE.

“ We have before referred to the constant use which brewers and publicans in this country have made of the report of the Collective Investigation Committee of the British Medical Temperance Association on the influence of alcoholic habits on the age at death of males over 21 years. This, it will be remembered, stated that the average age at death of a certain number of total abstainers was 51 years 80 days, or 50.22 years ; that of a certain number of habitually temperate men was 62 years 50 days, or 62.13 years ; that of careless drinkers 59 years 246 days, or 59.67 years ; that of free drinkers 57 years 216 days, or 57.59 years ; and that of men habitually intemperate 52 years and 14 days, or 52.03 years. Stated thus it would appear as if intemperance were less injurious to health and longevity than total abstinence. This interpretation has been over and over again most emphatically disclaimed by Dr. Isambard Owen, the secretary and reporter of the committee. But, of course, the pro-liquor party do not care a straw for that, and by public advertisement, letters to the papers, bills in public houses, etc., have done their utmost to get this so-called fact into the minds of the British public. We hear that this very useful ‘ fact ’ is much too good a thing to be confined to this side of the Atlantic. There is evidently nothing to equal it among our American cousins, and so it is being industriously worked in the United States as a ‘ frightful example ’ to deliver those in danger of becoming abstainers from going down prematurely into the pit. When a lie like this gets a start it takes many a long day for truth to catch it up. The only thing we can hope to do is to let every abstainer know of this fallacious and misleading statement, and the explanation of it, and to repeat this from time to time. It does not suit the liquor trade to let it be known that there were only 122 total abstainers out of the whole number of 4234 deaths, and no less than 603 habitual drunkards, and so many others more or less frequently intoxicated that no less than 30 per cent. of these adult males were classed as intemperate at some period of their lives ! It is also not explained that these figures have not the slightest significance of force unless the average age of all living males in each class is taken into account. It is notorious that the average age of present-day male abstainers is much below that of all other adult males, because the great majority of abstainers are young men who have grown up from our Bands of Hope. As it has been well said, the very same difference would be seen if the ages at death of males who have and who have not been educated in board schools were compared. As board schools are only about thirty years old, there are no old men among those educated in them. This result, then, might as reasonably be said to prove that board-school education is injurious to longevity ! But a very little consideration will convince any one open to conviction that these very figures really indicate the advantage of total abstinence. For the small number of 122 dead teeto-

talers against 4112 drinkers of all sorts shows clearly that the mortality among abstainers is lower than that among non-abstainers, a fact amply corroborated by life insurance societies. The dead abstainers are not quite *5 per cent.* of the whole number; but it is notorious that there are far more than three abstainers in every 100 adults. We might safely say that there are at least fifteen, probably more. It is clear, then, that if the mortality among the abstainers had been as great as among the drinkers there would have been 635 deaths instead of 122. Hence we must conclude that the other 413 are living on, not having had time to reach the end of their natural lives. We may be quite sure that a similar investigation held every ten years would reveal a gradually increasing longevity among abstainers until, in the course of fifty years, their average age at death would be above all the rest. If the liquor trade simply desired to spread the truth they would cease to publish this misleading table."

This explanation puts the matter in a very different light, and coincides entirely with our own individual views that total abstinence ought to conduce to the greatest longevity.

Poisoning from Veal.

A German physician, Dr. Van Ermengen, recently investigated the cause of an outbreak of gastro-intestinal inflammation involving fifty-six persons, four of whom died. The suspected cause was the flesh of two calves. On investigation it was found that the calves, when killed, were afflicted with a sickness of some sort. Examination of a portion of the body of one of these animals, and of the liver, spleen, and intestines of one of the victims of the poisoning, revealed a germ closely resembling those known to be the cause of hog cholera.

The Human Family.

The following are the latest published figures. The human family living on earth to-day consists of about 1,450,000,000 persons in round numbers. Of these only about 500,000,000, or one-third, are even properly clothed; 250,000,000 habitually go naked; 700,000,000 have only the middle part of their body covered; only 500,000,000 live in houses, 700,000,000 in huts or caves, while the remaining 250,000,000 have no home or shelter whatever.



Athletics and Alcohol.

Sir Benjamin Richardson, in an address on "Athletic Life," says that abstinence from alcoholic fluid is absolutely necessary. "As long as you are in course of training, don't touch the hurtful thing. It will undermine all the qualities on which you depend for success, will injure your precision, your decision, your presence of mind, and your endurance."—*Public Opinion*.

Glycerin for Sore Throat and Coughing.

A foreign medical journal is authority for the statement that a tablespoonful of glycerin in hot milk or cream will at once relieve the most violent attack of coughing. This is a simple, easily-obtained, and harmless remedy, and, if it keeps good its promise, will prove to be of great value. Equally simple and quite as effective is the use of glycerin spray through an atomizer. This is applied directly to inflamed or irritated surfaces, and gives almost instant relief. In attacks of influenza, colds in the head, sore throat, and like troubles, glycerin mixed with three times its bulk in water, boiled and cooled, is an invaluable remedy.

Bacteriological Examination of Water.

Dr. Blachstein has recently made a series of experiments in the Pasteur Institute of Paris, in reference to the best mode of determining the quality of water by bacteriological investigation. His view is that the quality of the microbes found in water is of much greater importance than the quantity. His mode of investigation is to make a culture of water in bouillon. It is found possible to inject two cubic centimetres (one-half drachm) of bouillon culture of good water into the vein of a rabbit without injury, while one-half to one cubic centimetre of the culture of the water of the Seine and other impure waters resulted in death within three or four days. Similar results were obtained in investigations with guinea-pigs and mice.

The Use of Sleep.

The question is often asked, "How long can a man live without sleep?" The victim of the Chinese "waking torture" seldom survives more than ten days. Those condemned to die by the waking torture are given all they wish to eat and drink, but sleep is denied them. Whenever the poor victim closes his eyes he is jabbed with spears and sharp sticks until he is awake. There is no torture more horrible.

Athletics.

The praise of exercise and training has been sung so systematically and enthusiastically that most people have come to believe athletic sports and sound health to be almost identical things. As a matter of fact, athletic exercise is not always needed, not always beneficial, and is sometimes pernicious. Life insurance examiners agree that professional athletes are short-lived, while amateurs may or may not have a long and healthful life. Those whom vigorous exercise would help most are often the very persons who do not indulge in it.—*Medical Record*.

A Dietetic Experiment.

The medical department of one of the infantry regiments of the Guards stationed in Berlin is engaged in carrying on gastronomic experiments, not on the usual patient laboratory animals, but on medical students (candidates for the army surgeon's examination) who volunteer to serve as subjects of experiment. These young martyrs to science undertake to eat and drink nothing beyond the regimental rations during the period of observation, which lasts from a fortnight to four weeks. Daily they may be seen in full equipment marching out with the regiment, sharing its fatigues to the full. Immediately on their return to barracks every day they turn into the Charité Hospital, where their temperature is taken,—pulse, body-weight, amount of perspiration, etc., registered, and even the stomach-pump used on some of the most devoted. These experiments, which are carried out with true German thoroughness, are to furnish data for further improvement in the nutritive value of food supplied to soldiers on the march.—*British Medical Journal*.

Letting Children Alone.

Nurses are sometimes hinderances to the natural development of children. It is a misfortune for a child to have his shoes put on and his face washed for him up to the age of ten or even five years. He ought to be taught to take pleasure in making his own toilet and in helping himself. Independence is delightful to unspoiled natures, and a child who has always been respected and not over-governed will prefer not to have other people's hands busied about his person. Few realize how much a child's native delicacy is injured by handling him. The much-handled, much-fondled little girl or boy gets a sickly, flabby look which expresses much to the eye of a physician. A certain amount of isolation is necessary to healthy growth. Let the child's instinct be the guide in this matter. When he wants to be kissed and held he will come and invite it, if he feels the happy sense that all children ought to feel, of being welcome. But, as a general thing, judicious letting alone is a wise plan. Little ones learn to do things for themselves by making mistakes. Parents who are too impatient that everything should be right at once to tolerate failures, deprive their children of the natural method of education.—*Childhood.*

Warnings Unheeded.

The *Iowa State Register*, in a recent issue, gave an account of a prominent, very successful, and highly esteemed citizen of Des Moines being suddenly smitten with blindness from the rupture of a small cerebral blood-vessel. He had previously had a number of slight and very temporary attacks of blindness, but as the trouble subsided in a few minutes he attached no particular importance to it. The *Register* gives a very faithful and complimentary account of his energy and perseverance, and his untiring application to business. It says, "During his residence in Des Moines he has been phenomenally successful in his business undertakings, and he is in the way of becoming one of the wealthiest men in Iowa. So rapid has been his success that no one can place any limits on what he may accomplish. *All his days and almost all his nights have been given to planning.*" [Italics are ours.—Ed. *Bulletin.*]

There is a "thus far shalt thou go and no farther" to physical endurance. The blood-vessels of the brain, from the constant

pressure induced by planning day and night, become enlarged and their walls correspondingly weakened, and finally rupture, producing local or general paralysis.

The gentleman referred to was not more sinning than many others. Like all others so prodigal of their vital energies, he has doubtless had many warnings of danger and admonitions to slacken the pace at which he was living. Had he not been a man of most exemplary life and habits he must, living a life of such high pressure, have fared worse.

We have in mind a distinguished judge of the Iowa Supreme Court who, a few years ago, because of overwork, was smitten with blindness, which continued for some time, from which, however, he has happily recovered.

The goal attained by overwork—especially by such high pressure physically as induces local or general disability—does not pay. Fortunes of the greatest magnitude are like the apples of Sodom if by their getting the health is ruined. We are impelled to paraphrase a most momentous and unanswerable question propounded by the Great Teacher,—“What shall it profit a man if he shall gain the whole world and lose his health thereby?”—*Iowa Health Bulletin.*

Marriage and Long Life.

Among the Massachusetts centenarians, one in eleven of the women had never been married, while among the men the corresponding proportion was only one in twenty-three. Further than this, while there were three times as many women as men among the centenarians as a whole, there were six times as many among the unmarried ones. It would seem to be a fair inference that the effect of celibacy is less fatal to longevity among women than men. Nor is this other than might be expected, when we consider how helpless and dependent is an old man, and how unable to care for himself in the little niceties of life which contribute so largely to health and comfort, and how much less so in all these respects is an old woman.

But it would be a manifest error to conclude that, because the average age of the married exceeds that of the unmarried, therefore this excess of longevity is due to the married state, unless it can first be shown that the individuals composing the two classes were originally in the enjoyment of the same degree

of health and soundness of constitution ; whereas, it is an indisputable fact that those persons entering the married state are, as a whole, more robust and enduring, and hence have a greater natural expectation of life, than those who remain single ; and it is also evident that repeated marriages, and especially marriages late in life, are indications of a greater than usual degree of vigor and vitality. They are, therefore, in the nature of an effect rather than a cause of extreme longevity.—From "Some Lessons from Centenarians," by Dr. J. M. French, in *The Popular Science Monthly* for October.

Death-Rates and Race.

I will not weary you with further details of figures, which those of you who are specially interested in the subject will find in the reports of the Vital Statistics of the Eleventh United States Census, but will merely say that the corresponding data from Boston, Philadelphia, Baltimore, Washington, and from the New England States as a whole, taken with those from New York State and New York City, and with those derived from a special investigation of over 10,000 Jewish families, including over 50,000 persons, lead to the following conclusions as being probable for the United States: 1. The colored race is shorter lived than the white, and has a very high infantile death-rate ; it is specially liable to tuberculosis and pneumonia, and less liable than the white race to malaria, yellow fever, and cancer. 2. The Irish race has a rather low death-rate among its young children, but a very high one among adults, due to a considerable extent to the effects of tuberculosis, pneumonia, and alcoholism. 3. The Germans appear to be particularly liable to disorders of the digestive organs and to cancer. 4. The Jews have a low death rate and a more than average longevity ; they are less affected than other races by consumption, pneumonia, and alcoholism, but are especially liable to diabetes, locomotor ataxia, and certain other diseases of the nervous system.—*Dr. J. S. Billings.*

The Golf "Cure" for Insomnia.

A writer in the *Scotsman*, commenting upon the Marquis of Salisbury's recent address to the members of the British Association at Oxford, expressed regret that his lordship should be a

victim to the modern and very prevalent disorder of insomnia. He went on to appeal to the medical profession for some prompt and effective remedy for that distressing ill. "Would that the noble leader of the Conservative party would take a three months' course of golf" was the inward exclamation of one who had himself suffered from insomnia, and was at the time rejoicing in a succession of nights of profound and refreshing sleep. Golf is the game for the exhausted brain-worker at any stage of his life. No junior is too young, no senior is too old to learn it; to learn it and to enjoy it. The proof of the pudding is in the eating. On the golf links of St. Andrews the man of seventy looks fifty, and the man of fifty has the appearance of thirty-five. Sleeplessness, so far as the writer was able to discover in a three weeks' sojourn at St. Andrews, is absolutely unknown to the regular golf players. One may almost say it is impossible. Living, as he does, in the open air, and taking several hours of daily exercise without unpleasant fatigue, and with a mind constantly, but not laboriously, interested, he eats well, and so the brain is adequately nourished. The only trouble with the remedy is that a man must be a person of leisure in order to take it.

The Darkened Room.

Dr. B. W. Richardson says that the first words of most physicians when they enter sick-rooms in private houses should be Goethe's dying exclamation, "More light! more light!" It certainly is true that generally, before the doctor can get a good look at the patient, he has to ask that the curtains be raised, in order that the rays of a much greater healer than the ablest physician may ever hope to be may be admitted. If the patient's eyes are so affected that they cannot bear the light, a little ingenuity will suffice to screen them and at the same time allow the cheerful light to enter. A dark sick-room must be an uncheerful one, and now that it is known that light is one of the most potent microbe-killers, let us have it in abundance. Why should people behave as if they were quite sure the patient were about to die? In the matter of abundant light, hospital wards are more salubrious than most private sick-rooms, for light not only slays bacteria, but cheers the mind. To account for "the darkened room," that is such an ordinary accompaniment of illness that it may be said to be firmly built into English literature, we must go

back hundreds of years, when a patient who was sick, say on a "four-poster" bedstead, was tightly enclosed with red curtains, that color, through some unaccountable superstition, being thought to have an occult potency over disease. Old superstitions die hard, and it will yet require years of education and united efforts of doctor and nurse to let in God's first-created gift to man to the rooms that it will warm and brighten and purify as nothing else can.—*New York Independent*.

Keep the Chin in to be Healthy.

"If my daughter were going to Europe to spend a year without her family," said a wise mother the other day, "and I were to give her a brief rule as a guide to health, it would be this, Keep your chin in." This seemed unintelligible until she elaborated it and showed the effects of such an observance. She said, "To keep the chin in means to keep it well drawn back horizontally. That causes what physical culturists call a lifted chest or a live chest. A lifted chest insures deep and full breathing, and hence pure blood and perfect circulation. Perfect circulation is the greatest safeguard against contagion, and it prevents chilliness, the forerunner of colds. A lifted chest also throws the whole body into a graceful poise. The abdomen recedes, the thumbs fall into place by the side, the weight of the body falls upon the ball of the foot instead of the heel, and the shoulder-blades flatten. These effects are produced when standing or walking. There are also effects in sitting. A lifted chest then insures a straight backbone with the end of spine against the back of chair, instead of a curved spine, which many women assume while sitting. The habit of retaining a lifted chest is easily formed, provided the clothing is reasonably loose."—*Prairie Farmer*.

The Perils of Foot-Ball.

We have received from a correspondent, in reference to the fact that many serious accidents, and more than one death, have already, and thus so early in the season, been reported from the foot-ball field, the following letter: "All lovers of foot-ball, both players and spectators, would rejoice if accidents due to foot-ball were of less frequent occurrence, and I feel sure that such would be

the case if these suggestions were carried out : 1. Give the linesman, as well as the referee, power to stop the play for a foul charge or whack. 2. Let the spectators desist from such cries as 'Pay him out', etc. 3. Let the players wear tennis shoes, and not boots with steel plates inside the toes, as I know the modern boots are now made.' We agree with our correspondent's first two suggestions, and go further. It has always been our cry—and we have been pleased to see it taken up and echoed approvingly by our contemporaries, medical and lay—that the strengthening of the authority of the referee, coupled with more drastic penalties for the wrong-doer, must be the most practical method of preventing accidents that arise not so much from the essential laws of the game as from "bad blood." And certainly such cries as "Pay him out" are the very things to rouse the evil spirit. Our correspondent's third suggestion is not so sensible. First, nailed and steel-shod foot-gear is not permissible by the laws of the game; and, secondly, india-rubber soles would practically alter the game.—*The Lancet*.

Milk-Tickets as a Medium of Infection.

In an ordinance recently adopted by the Council of Menominee, Mich., to regulate the selling of milk, a good point is made in giving protection against possible infection through the medium of milk-tickets.

Section 11 provides that "no licensed milk-dealer shall receive compensation in tickets from houses or premises which are placarded by the health officer until such placard has been removed, and all tickets found by such licensed milk-dealer in such houses shall at once be destroyed by burning the same, and new tickets issued in place of such as shall be found in infected houses. All milk-tickets shall bear date of first use and be destroyed within three months."

This is in line with the action of the health authorities of Urbana, O. An order has been adopted prohibiting the use of theatre-tickets brought from some other city, the manager of each troupe being compelled to issue new tickets for the people of Urbana.

It is certainly well that every possible avenue of contagion should be guarded as closely as possible; but what is to be done with our dirty paper currency?—*Ohio Monthly Sanitary Record*.

How Diphtheria Spreads.

A serious epidemic of diphtheria in Detroit, Mich., among school-children, was traced to the changing of lead-pencils. At the close of school each day all pencils were deposited in one box, and the next day distributed among the pupils. The disease was spread by the habit of putting pencils in the mouth, as all children do. Thus an infected pencil would serve to infect several children. Such a rule should be abolished.

In a county in this State was a family of nine children who had passed through a siege of whooping-cough. Being convalescent, with their parents they visited a relative, several miles distant, New Year's Day, and one, a babe, took cold. During the evening the babe was held several hours by a woman from another county, in whose family two deaths had recently occurred from diphtheria. The babe was immediately attacked with diphtheria and died, and the other children exposed, with the probability that not one will escape. A person who thus knowingly exposes another to a contagious disease is no less guilty of an attempt to kill than he who puts poison in food or drink, and they should be made to suffer a like penalty.—*Exchange*.

Healthy Meat.

There is a popular feeling that the Jewish manner of inspection and slaughter is a guarantee of healthy meat, and it is very common in large cities to find in a prominent place in the market the word "Kosher," in Hebrew characters, showing that the cattle have passed inspection and were perfectly healthy, and that the animals were killed by bleeding. That there are two sides to the question is evident from the statement in the January issue of *Public Health*, of J. Lawrence Hutton, M.R.C.S., himself a Jew, thoroughly conversant with the Jewish manner of slaughtering, which he condemns in the strongest terms as cruel and clumsy, and says, so far from the meat being better than so-called Christian meat, that it is not as good, from the fact that it is more prone to decomposition and therefore does not keep fresh as long. Dr. Hamilton quotes Sir Benjamin Richardson, who says that less blood is retained in the flesh of an ox killed with the pole-axe than in that of an animal put to death according to the Jewish ritual. Dr. Hamilton says the Jewish system of meat inspection

is a farce, from the fact that the inspectors are ignorant of veterinary science, and that the "cut-throat method" of killing is needlessly cruel and revolting, the duration of the dying often lasting from eight to twenty minutes, during which the animal passes through the periods of terror, pain, and faintness. With the so-called Christian method death is instantaneous. The opponents of vivisection might find in the Jewish slaughtering not only facts to disperse a popular fallacy, but also enough to put an end to needless suffering.—*New York Medical Times.*

On taking Fluid with Meals.

A great deal of misapprehension is often found to exist in the popular mind in regard to matters of eating and drinking; the cause of this to some extent is to be traced to old-time sayings, which have come down to us in the form of a concentrated infusion of somebody's opinion upon a subject of which he or she was woefully ignorant. One of these misapprehensions to which we may refer is as to the injuriousness of taking fluid with meals. One frequently hears it laid down as a maxim that "it is bad to drink with your meals, it dilutes the gastric juice." By way of explanation, we may remark that "it implies that the fluid taken is harmful." Whence this sagacious postulate originally came we cannot tell; it has quite the ring about it of an inconsequent deduction formed by a person whose presumption of knowledge was only exceeded by a lamentable ignorance of the subject. Medical men often find much difficulty in dealing with these museum specimens of antiquated science, for even educated persons are disposed to cling to the absurdities of their youth. Upon this matter Mr. Hutchinson remarks in the last number of his *Archives*, "I observe with pleasure that the verdict of general experience and common sense has been confirmed by scientific experiment in the matter of taking fluid with meals. Dr. Tev. O. Stratievsky, of St. Petersburg, after elaborate trials, has found that fluids materially assist the assimilation of proteids, and announces the following conclusion, which it is to be hoped no future experiments will controvert: on the whole, the widely-spread custom of taking fluids during or just before one's meals proves to be rational and fully justified on strict scientific grounds. To take fluids with the meals is almost as important an adjunct to

digestion as is the mastication of solid food preparatory to swallowing it." It is obvious, however, that there is a limit to the amount of fluid one can swallow with impunity—not to speak of comfort—just as much with meals as at other times. It would be dangerous to create a general impression that fluid is good with food irrespective of quantity. It is, moreover, a well-ascertained clinical fact that excess of cumprandial fluid does retard digestion in certain people, and gives rise to discomfort in most. A little attention to one's sensation in such matters will far better fix the desirable limit than all the "data" in the world.—*Medical Press and Circular*.

Late Suppers.

The old tradition that to eat anything just before going to bed was sure to produce indigestion and render sleep impossible is now happily exploded. It is not good, as a matter of fact, to go to bed with the stomach so loaded that the undigested food will render one restless, but something of a light, palatable nature in the stomach is one of the best aids to quietude and rest in bed. The process of digestion goes on in sleep with as much regularity as when one is taking violent exercise to aid it, and so something in the stomach is a very desirable condition for the night's rest. Some physicians have declared, indeed, that a good deal of the prevalent insomnia is the result of an unconscious craving of the stomach for food in persons who have been unduly frightened by the opinion that they must not eat before going to bed, or who have, like many nervous women, been keeping themselves in a state of semi-starvation.

Nothing is more agreeable on retiring for the night than to take a bowl of hot broth, like oatmeal gruel or clam soup. It is a positive aid to nervous people, and induces peaceful slumbers. This is especially the case of cold winter nights, when the stomach craves warmth as much as any other part of the body. Even a glass of hot milk is grateful to the palate on such occasions, but a light well-cooked gruel is better, and in our climate during the cold months of winter should be the retiring food of every woman who feels, as many do, the need of food at night.—*New York Tribune*.

Hon. Chauncey M. Depew on Moderate Drinking.

Hon. Chauncey M. Depew will scarcely be accused of fanaticism on the question of liquor-drinking. His opinion as a man of wide observation and knowledge of human nature is valuable even to those who would discount his opinions on the political methods of dealing with the evil. Here is Mr. Depew's experience as stated in a speech of his before a company of railroad men,—

“Twenty-five years ago I knew every man, woman, and child in Peekskill. And it has been a study with me to mark boys who started in every grade of life with myself to see what has become of them. I was up last fall and began to count them over, and it was an instructive exhibit. Some of them became clerks, merchants, manufacturers, lawyers, doctors. *It is remarkable that every one of those that drank is dead; not one living of my age.* Barring a few who were taken off by sickness, *every one who proved a wreck and wrecked his family did it from rum and no other cause.* Of those who were church-going people, who were steady, industrious, and hard-working men, who were frugal and thrifty, every single one of them, without an exception, owns the house in which he lives, and has something laid by, the interest on which, with his house, would carry him through many a rainy day. When a man becomes debased with gambling or drink, he doesn't care; all his finer feelings are crowded out. The poor women at home are the ones who suffer,—suffer in their tenderest emotions; suffer in their affections for those whom they love better than life.”

I think almost every one who is 75 years old, if he will look back and review carefully his youthful acquaintances, can bear almost, if not equally, as strong testimony as to the effects of intoxicating drinks on human life.

Total Abstinence and Long Life.

Hon. J. N. Skinner, of England, in the *Alliance News*, after giving medical testimony against the use of alcohol, says,—

“The medical testimony is confirmed by the experience of life assurance societies. Only carefully-selected moderate drinkers and abstainers can assure their lives. Nearly a dozen offices now recognize the increased vitality of abstainers. One office (the Scottish Temperance) admits abstainers at 10 per cent. lower

premiums than non-abstainers. In the United Kingdom Temperance and General Provident Institution, where the two classes are kept separate, during the past twenty-eight years 8440 non-abstainers were 'expected' to die, and 8266 actually died, being only 2 per cent. short of the 'expected.' In the abstainers' section during the same period 5841 were 'expected' to die, but only 4131 of the stubborn teetotalers died, leaving 30 per cent. alive. At the last division of profits (covering five years) the non-abstainers received a bonus of £8 15s. per £100 assured, as against £11 10s. paid to the abstainers. Robert Burns tells us 'Facts are stubborn chieles that winna ding,' and I feel bound to place the inexorable logic of hard facts before mere theories about so-called 'harmless drinking.' "

Competitive Examinations.

Sir Benjamin Ward Richardson has some excellent remarks in the *Asclepiad* on evils of competitive and other severe examinations. He says, "The modern student of the middle and upper classes of society during the time he or she is preparing for examinations, which means the most critical time of his or her life in respect to health, finds no time whatever for healthy recreative pleasures. There is no possibility of such a thing. The exigencies are so pressing, the dread that failure may cause 'plucking' is so incessant, the mind has really no peace except the eyes are bending over the book and are straining to take in still more and more of the hard lesson. The anxiety brings sleeplessness; the sleeplessness increases the anxiety; then the body becomes feverish, and at last, when the great effort has been made, the result, whichever way it turns, is inevitably bad. To win is to secure a passing advantage bought at the cost of some years of active life and with the mental faculties forced into grooves out of which they never quite free themselves. To lose is to be subjected to chagrin and annoyance which in sensitive natures runs actually into remorse, shame, or a dazed imbecile carelessness which, in a person past maturity, would lead to dementia, and which in the young is at no time fairly recovered from and never fully forgotten.

"I am perfectly alive to the fact that, in writing what I have written above, I am stating some very hard and unpleasant truths; but, 'if an offence come out of truth, better is it the offence come than the truth be concealed.' I am but telling as a

true physician what experience teaches me of the physical conditions induced by the excessive and useless exercises of labor to which the younger and as yet better brains of our community are subjected. I am but telling the experience of other members of my profession who feel as I do, if they do not express themselves so freely. After a lecture I once delivered in one of our large provincial towns, and in which I spoke what I have here committed to paper, one of the eminent physicians of the place came to me afterwards to thank me for the statement, and to give me the following personal experience. 'My own son,' he said, 'a youth of good intellectual parts, made up his mind to go in for his degree at the university,'—meaning the university in which, in this kingdom, the process of intellectual destruction is most scientifically and systematically carried out,—'and determined also, if it were possible, to win a good place in the lists of honor. He worked through all the preliminary grades with untiring industry, taking no rest and unable to find time for any. He went in for his great effort, lost, and now is wandering on the Continent utterly broken down mentally and physically, more than an idiot, for the time, though a youth of good intellectual capacity, originally on whom every expense has been bestowed to insure for him a good education.' These results of their system they who plan and carry out the examination do not see. They are intent only on the sustinment of what they honestly consider to be the credit of the university and the maintenance of its high character, so that none but the brightest scholars should appear on the rolls of its graduates. The examiners look purely, as is their duty, for the direct efficiency of those who come before them for examination. Neither manager nor examiner can ask after the antecedents of those whom they take in charge. They do not know that the student may be the subject of tubercular diathesis, of heart-disease, or brain affection, and that out of every dozen students one, at least, will be under some such disqualifying hereditary influence. They proceed, adding difficulties upon difficulties, as if every student had the same stamina and the same capacity."—*The Sanitary Record*.

Health and Hygiene.

The whole number of deaths in the city of Philadelphia for the week ending at noon Saturday, December 22, was 391, showing a falling off of 29 deaths as compared with those reported for

the preceding week, and 147 less than those reported for the corresponding period last year. There were 114 deaths of children under five years of age. The causes of death were as follows :

Apoplexy	11	Hernia	1
Bright's disease	17	Inanition	5
Burns and scalds	1	Inflammation—	
Cancer	9	Brain	12
Casualties	12	Bronchi	11
Congestion—		Cæcum	2
Brain	2	Joints	1
Lungs	5	Kidneys	8
Cholera infantum	2	Lungs	47
Cirrhosis of the liver	3	Pericardium	1
Consumption—		Peritoneum	3
Bowels	1	Pleura	2
Lungs	44	Spine	1
Convulsions	14	Stomach and bowels	7
Croup	1	Influenza	2
Membranous	14	Insanity	2
Cyanosis	5	Jaundice	1
Debility	2	Marasmus	12
Diabetes	4	Old age	11
Diarrhœa	1	Paralysis	7
Diphtheria	34	Purpura hæmorrhagica	2
Disease—		Rheumatism	1
Heart	29	Septicæmia	2
Kidneys	2	Small-pox	2
Spleen	1	Softening of brain	1
Dropsy	1	Suicide	1
Drowned	1	Syphilis	2
Dysentery	1	Teething	2
Fever—		Tetanus	1
Remittent	1	Tumor	2
Scarlet	4	Uræmia	4
Typhoid	10		
Gall-stone	1	Total	391
Gangrene	2		

Contagious Diseases.

The number of new cases of diphtheria, scarlet fever, and typhoid fever, and the deaths resulting therefrom for the past two weeks, were as follows :

	December 15.		December 22.	
	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	102	36	103	34
Scarlet fever	43	0	41	4
Typhoid fever	73	7	39	10

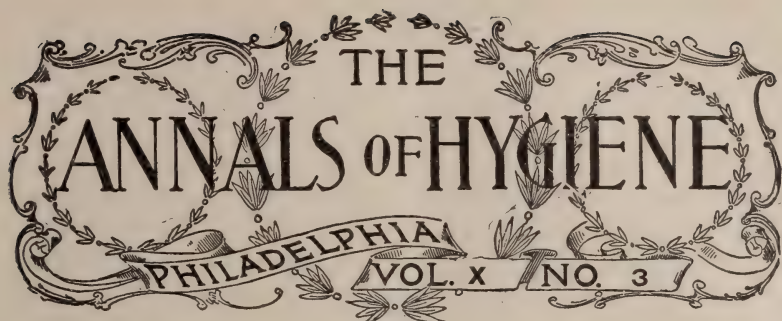


SHE IS 106 YEARS OF AGE.

Mrs. Hannah Chard, born April 28, 1788, and now living 12 miles south of Woodbury, N. J. In this picture she is standing beside her youngest son, Joel Chard, 70 years of age. Mrs. Chard was nearly 12 when General Washington died. We are under obligations for the photograph to Dr. J. A. Wamsley, of 1838 Diamond Street, who recently made it.



Rev. Dr. Wakefield, 96. Mrs. Wakefield, 92. David Wakefield, 72.
 Mrs. Nutt, 49. Mrs. Peiton, 28.



COMMUNICATIONS.

Five Generations of Living Humanity.

BY A. J. JOHNSON,

Uniontown, Pa.

IN proportion as the human race fear death do they cling to life, and anything that gives hope of continued existence in this world is of surpassing interest. It is ever a matter of congratulation and of hope to survey examples of longevity. Perhaps the most remarkable case now extant is that of Rev. Samuel Wakefield, D.D., LL.D., of West Newton, Westmoreland County, Pa.

The above sketch is from a photograph taken at the golden wedding of his oldest son, August 31, 1894, and represents the five generations now living of the Wakefield family. Rev. Dr. Wakefield is 96, his wife is 92, his oldest son, David, is 72, David's oldest daughter, Mrs. J. E. Nutt, is 49, and her daughter, Mrs. Pelton, is 28. Pelton's two children are about 6 and 4 respectively. These make the five generations of the picture.

Of Dr. Wakefield's ancestors, his father lived to 85, his mother to 78 years. He has one sister living at 84. His eldest sister died in infancy. Seven of his brothers and sisters, now dead, reached an average age of 75 years.

His grandfather lived 78 years, and his grandmother died at the ripe old age of 91. The average of the eight children of his grandfather's family at death was 85 years, the oldest, Joanna Carroll, reaching her hundredth year.

All the children of the Rev. Dr. Wakefield are living, except

the one that died in infancy. He can still gather five sons and five daughters about him. At the time of the golden wedding, above mentioned, there had not been a death in his family for sixty-five years. The grim reaper came, however, the 30th of last September, and took his beloved wife in the 92d year of her life.

The most remarkable fact in connection with the great age of the Rev. Dr. Wakefield is not his physical condition, but rather that of his mind. It is as clear to-day as that of most men. In fact, he can remember current events as clearly as those of his childhood days. His mind is vigorous and very active. The greatest difficulty with which he has to contend being his eyesight. Quite recently he finished and published a volume of thirty-two sermons, entitled "Gospel Tidings."

Dr. Wakefield was born March 6, 1799, in Path Valley, in what was then Cumberland County, now Huntingdon County, Pa. It is worthy of note that Washington did not die until the 14th of the following December, so that we get an idea of the great length of Dr. Wakefield's life when we think that it extends into and over that of every president of these United States. If it be true that we live in deeds, not years, in experiences more than in the flight of time, then Dr. Wakefield is far older than Methuselah. Think of the onward sweeping march of progress and development, the subduing of the wilderness, the building of this great nation, with its 70,000,000 of people, its wonderful commercial and industrial, social and political institutions, all passing before the eyes and into the life experience of one individual.

He is no dotard. He related to me the story of his life. His father was born on the battle-field of Achram, in Ireland. His grandfather had married Mary Wade, the daughter of a descendant of William Wade, to whom King William gave the ground of that battle-field as "venture land," William Wade being an officer in King William's army. His grandfather came to this country with his wife and three children sixteen years before the Revolution,—the oldest of these three children being Thomas Wakefield, Dr. Wakefield's father, at that time 15 years old. That journey across the deep cost them fourteen weeks of privation and suffering, and the life of a domestic servant, who died of fever on the way. Thomas married Elizabeth Morton, a young lady from Chester County, near Philadelphia. They settled in Path Valley, Huntingdon County, where they kept house for a

year or two. In the mean time Thomas's father had moved to the West, as it was then called, that is, over the mountains to what was then Westmoreland County, and afterwards Indiana County. Thomas followed in 1800, when his son Samuel was about a year old. They moved in sleds covered with canvas in the midst of winter, although it was in March, by way of the old Frankstown road, through Altoona, and, finally, to a point near Blacklick. Thomas had bought a settlement right to a tract of land heavily timbered. Here Dr. Wakefield spent his life till about the age of 20. He helped to clear off the first five acres of that primeval forest. Their nearest neighbors were bears, wolves, panthers, wild-cats, deer, wild turkeys, and rattlesnakes. The first year they killed thirty-six rattlesnakes, besides innumerable other kinds of reptiles. The boy Samuel was the errand runner, and often went to the mill six miles away. At this mill, while listening to other boys reading the notices on the door, he was first seized with a desire to become a scholar. He was so ashamed of his ignorance that he then and there resolved to be a scholar, let it cost what it might. At about the age of 11 he learned how to read from an old Bible. From that time on through most of his life he never rode horseback a mile in good weather without a book in his hand. His close application attracted the attention of the county surveyors, John Evans and Thomas Allison. From these two men and one other he got, altogether, seven months' schooling. He worked in the clearing till they had eighty acres under cultivation, then the settlement-right proved defective, and some one from Philadelphia claimed the land and made good his title to it. Thus all their labor of clearing and of erecting the buildings—viz., a log-house of two rooms and a loft, a log barn and stable and spring-house—was lost. Samuel was about 18. He raised a summer school, and taught near the present town of Blairsville. That town was laid out at the time he was teaching there. Of this school he tells the following anecdote:

"In every community in those days there was usually an old school-teacher who was looked up to as the possessor of all learning, and was made the court of final resort in all questions involving scholarship. There was such an ancient wielder of the birch in this community. He visited my school one day. A few days before that I had gotten Lindley Murray's Grammar. At recess the old gentleman picked up the book and said, 'Ah! I see you are studying grammar.' I replied, 'Yes, I thought of doing

so; but in looking over the book I had been puzzled as to how to begin. I would be very glad if you would tell me, and give me some insight into the subject.' He looked profound, and said, 'Sammy, grammar is an exceedingly abstruse and difficult subject, and it will scarcely repay you for the time and trouble you will be obliged to give to it to get even a smattering of it.' That was my first and only lecture on grammar. I afterwards conquered that and thirty other text-books on the subject, and then wrote one myself."

Dr. Wakefield's parents were Methodists. His grandmother was converted under the preaching of John Wesley, and joined one of his societies in Ireland. Wakefield's cabin in Indiana County was one of the preaching points on the Connellsville circuit. At his birth Dr. Wakefield's mother was taken with a fever, and the attending physician said the child must be removed from his mother, else he would take the fever and die. A Mrs. Hudson, who lived in the neighborhood, and who had a child a few months old, heard of the case, and came and offered to take Mrs. Wakefield's baby until she got well. The physician agreed to this arrangement, and Mrs. Hudson afforded nourishment for both the children for about three months. The Wakefields removing over the mountains to the West nothing more was known of the Hudson baby for twenty years. One day an appointment for preaching was made at the house of the Wakefields, the meeting to be held by two new circuit riders, by the name of Connelly and Hudson. When the preachers came it transpired that the young preacher was the same who had nursed at the same breast with Samuel Wakefield. They were brothers, and then and there began a friendship which lasted in brotherly love until about four years ago, when Dr. Wakefield made an affectionate address at the funeral services of "Pappy" Hudson,—as he was called,—held by the Pittsburg Methodist Episcopal Conference, of which body they had been honored members all the balance of their lives, Wakefield becoming a licentiate within a few months after Hudson entered the ministry. John Strickler, another preacher, used to come to the Wakefield cabin on his rounds. He had many conversations with young Wakefield, and formed so favorable an opinion of his attainments that he secured him to teach a school at his home in Westmoreland County. Here Wakefield, while teaching, also preached, having been licensed to do so at Connellsville in 1819.

An appointment being made for him at the house of John Strickler, he preached there one evening, and under his ministration Elizabeth Hough sought and found religion. She was a sister of Strickler's wife and a daughter of a substantial farmer who lived about three miles away. It was a case of love at first sight. Dr. Wakefield now modestly says he thought she would make a good minister's wife, and asked her if he might address her on the subject of matrimony. She was willing. The courtship was brief. The old folks, especially the mother of the girl, objected. So the young people took a sudden and unceremonious leave. They were married. The old gentleman says he looks upon that as a stroke of divine providence. She made the best of wives. They lived together seventy-three years, and made his student and preacher life a possibility and a success. The old adage "Jack of all trades and master of none" has been disproved in the case of Dr. Wakefield. He has occupied with great credit every position in the gift of the Pittsburg Conference, except that of bishop. He has written a work on theology, entitled "Christian Theology," which was, by resolution of the Conference, adopted for publication by The Methodist Book Concern. It has also been published by the printing houses of the United Brethren, The Cumberland Presbyterian, and several other Protestant denominations, and is used all over the Christian world as a text-book on the subject. He has many volumes of unpublished manuscripts. Running along-side of his ministerial and theological work has been his devotion to music. Very early in life he showed decided talent as a singer. At 12 years of age he was called upon to lead the singing by the ministers who frequented his father's. At 14 he taught singing-school. He has written and published seven different works on music. One of these is written in the German language. These publications began about 1823 and have come out at periods down as late as the sixties. Some of them have passed through many editions. His music is all of a sacred nature. Another phase of this wonderful man is his mechanical genius. When quite a boy he made his spending money by casting pewter fifes, which he found ready sale for in the neighborhood. He has made a flute, a clarionet, and a great number of violins. The first winter after his marriage he taught school, and employed his evenings making furniture with which to begin housekeeping in the spring. He has made nearly everything that is needed to furnish a house. He

has built several buildings, improved several farms on which he has lived at different times, always planting orchards of fruit-trees, mostly of his own grafting. Everything he did was of the very best workmanship. He became a thorough Greek, Latin, and Hebrew scholar, and wrought out for himself a liberal education in addition to all these things. His life has been constantly employed in preaching the word of God. As late as 1875, with his own hands, he excavated a cellar under the house in which he then lived, and built as good a stone-wall foundation under it as could be built by any man. In all his long life he has never been idle, and yet the other day he said it seemed to him that he had accomplished very little.

On being asked how he accounted for his long life, Dr. Wakefield says he has no particular recipe. He has always been a very careful eater, holding his appetite under such subjection that no amount of importunity on the part of the kindly-intentioned members of his various congregations could induce him to eat or drink what he knew would not agree with him. When a boy of 16 he was hired out to a farmer for a period of six months. He was put to work along-side of a stout man through harvest. He kept up as best he could on a diet of buttermilk and coarse rye bread. At the end of the fifth month he broke down entirely and went home, where he took to his bed. For two months he could not turn himself in bed. He never was considered after that as being rugged. He has ridden many thousands of miles in all kinds of weather, sleeping in guest-chambers, with their proverbially unaired and damp beds. But he has practised all his life the warming or "toasting" of his feet before the fire before going to bed. No matter where he might be he has asked the privilege of doing this. Contrary to the most commonly-accepted ideas of healthful diet, he has been a great lover of pork, and has seldom eaten a meal without it when it could be had. This, of course, not applying to his suppers, which have almost always been very light, his favorite dish being mush and milk. His equanimity of disposition and diversity of physical and mental employment, coupled with his love for music, have, no doubt, tended to lengthen his days. But he says he can see nothing in it except the hand of the Almighty who has spared him to live here for His own wise purposes.

The doctor's wife was always one of the most industrious of housewives. She was proverbial in her community as a good

cook and as setting a table laden with good things to eat. She was one of the merriest of souls. When work was to be done she did it with a will, but when any fun was to be had she was among the foremost. When her sons and daughters were young folks at home their house was the place for fun and frolic. She never had any sickness of any moment, holding her activity till within the last two or three years, and until that time doing her own work. She would not put up with the ways of servant-girls.

David, the eldest son, studied medicine and, after practising awhile, gave it up. He married Mary Covert and settled down upon a farm. Here he has lived ever since. He became a local preacher in the Methodist Episcopal Church and rode circuit for several years. At about the age of 30 he was taken down with typhoid fever and came very near to death's door. Ever since that he has been more or less afflicted with rheumatism. He has not been so careful of his health as his father, but is now at 72 in fairly good health. His wife, whose father, Benjamin Covert, died at the age of 92, is a hale and hearty old lady of 70. Far more industrious than the most of the girls of the present time.

The other members of the above group, if there be anything in heredity, have a fair prospect of attaining a ripe old age.

Doctors as Companions.

The following passage from Mr. James Payn's "Gleams of Memory," now appearing in the *Cornhill Magazine*, will be interesting to members of the medical profession: "Upon the whole, and for a 'scratch' companion, I prefer a doctor to a man of any other calling. He may not be very good as a conversationalist, but he is rarely very bad, like a cheroot. He has had a genuine experience of life, and has seen down to the depths of it; a sick man does not attempt to deceive his doctor, or put the best face on his character, as he does with a priest. Moreover, what is very unusual, your doctor knows more about you, professionally at all events, than you know about yourself. He does not tell you about it, it is true; not a word of that aneurism you carry about with you, and which will some day kill you in half a minute, but your consciousness that he may possess such knowledge makes him interesting. The best suggestions I have had made to me for plots for my novels have come to me from doctors, to whom I have also had cause to be grateful for many things."

Mushrooms and Their Poisons.

BY HARVEY B. BASHORE, M.D.,

West Fairview, Pa.

NO one has ever questioned the food value of mushrooms, for, containing as they do something like 20 per cent. of proteids, some fats, and salts, they form the largest supply of proteid food which is yielded by the vegetable world; and there is no reason why they should not have a more prominent place in our dietary. They have a food value which exactly supplants meat, and a daily diet of twenty ounces of bread, ten ounces of potatoes, and twenty ounces of mushrooms (dried) would be just as nutritious and just as digestible as the same amount of bread, potatoes, and meat. There are so many edible varieties which grow wild in every locality that it would be a good thing if physicians could educate the people more in the matter of distinguishing, procuring, and preparing them, especially when times are so hard and indigenous food plants have a distinctive value. We neglect them because we do not appreciate their value, but any one who has enjoyed a meal of the *coprinus comatus* has found that this is not a subject which is worth neglecting. I have before me a water-colored sketch of a variety of puff-balls which I recently discovered, and, although not very attractive-looking, this particular variety has probably more proteid material to the ounce than any other food-supply in existence,—not even excepting meat.

The fear of getting poisonous fungi probably deters a great many people from using mushrooms, but it is well to remember that there are really only two very poisonous varieties, and these are so distinctively marked that it is simply carelessness to make a mistake. I do not mean, however, that we should eat all fungi save these two.

Each edible variety should be learned individually just as we learn any other plant. Experiment in this, as in any other branch of science, should be relegated to experts and the laboratory. These poisons of the mushroom are rather interesting, for we have yet much to learn about them, and the diagnosis "mushroom-poisoning" still remains a rather vague and mysterious term.

Muscarine—the best known of these alkaloids—was discovered by Schmiedeberg and Koppe some twenty-five years ago. Its physiological action is well known, and its antagonism with atropine forms one of the standard examples in toxicology. Choline has also been found in poisonous fungi, and has been proven to be identical and isomeric with amanitin. Atropine also exhibits antidotal influence to choline, and probably likewise to neurine, which generally occurs with it.

Muscarine, neurine, and choline are more or less similar in chemical and physiological properties. All are produced from the decomposition of lecithin-like bodies, which was long ago shown to exist in plants, and all are said to yield promptly to the antagonistic influence of atropine or its isomeres of the solanaceæ. Consequently for a case of mushroom-poisoning due to alkaloids of the choline group, we have at hand a ready antidote.

But mushroom toxicology does not resolve itself into so simple a matter, for there are probably other poisons with whose composition and whose actions we are as yet little acquainted, and still they may play an active part in causing death. One, an unnamed volatile alkaloid, discovered by Sicard, is said to be very poisonous.

Yet again, there is another kind of mushroom-poisoning which I think has been overlooked. I refer to ptomaine-poisoning. Mushrooms, like all nitrogenous bodies, are subject to decomposition, and during such processes yield poisonous ptomaines; so a perfectly harmless fungus may become, during decomposition, a powerful toxine; and it is worth remembering that almost all fungi are very, very prone to decomposition. These bases, although we have no doubt of their existence, have not yet been isolated, and of their physiological action and their antidotes we know nothing. Consequently in a case of mushroom-poisoning we know not exactly as yet with what we have to deal. First, however, we should try atropine to combat any members of the choline group, and after that, in view of our present knowledge, symptomatic treatment is our only resource.

German Foresight.

During the last seven years the Prussian government has paid over \$400,000 indemnity for cattle slaughtered on account of tuberculous disease.

The Power of State Boards of Health.¹

BY DR. BENJAMIN LEE,

Secretary of the State Board of Health of Pennsylvania.



HAVING listened with deep interest to the paper of the gentleman from Connecticut, as well as to the discussion which has followed, I am strongly of the opinion that a State Board of Health should possess executive authority, and should not be a mere advisory board. This I hold to be necessary in order to enable it to command the respect of the community, and also to impress the State Legislature with a proper sense of its importance to the well-being of the State. Comparatively few legislators are men of sufficient intelligence, education, and breadth of mind to be able to appreciate the importance of vital statistics, and a board whose principal duty is to collate and compile such statistics will be very apt to find itself left. The average American mind wants some practical result, and is not willing to wait long years to see the good which will result from statistical work. To my mind the single word used by the reader of the paper which conveyed the gist of the matter was the word "misdemeanor," which, in the eyes of the law, carries with it the idea of punishment by imprisonment, as well as by fine. Every ordinance of a board of health, State or local, should be able to be enforced, if necessary, by imprisonment. This is the only weak point in the law creating the State Board of Health of Pennsylvania. While that Board has executive powers, it can enforce them only by fine, the limit of which is one hundred dollars, and the amount of which is at the discretion of the court. Probably the majority of cases in which our board is appealed to for relief are those of the pollution of streams. That pollution is caused by manufacturing corporations, often of great wealth. A fine of one hundred dollars, even if occasionally repeated, would be a trifle to them as compared with the expense to which they might be compelled to go to prevent the contaminating materials discharged from their works from enter-

¹ Remarks made before the National Conference of State Boards of Health at Washington, December 12, 1894, in the discussion of "The Necessity for Legislation to give the State Board of Health in each State Power to Enforce its Orders and Regulations Relating to Public Health."

ing the public stream. If, however, we could say to the gentlemen composing such corporations, "If you neglect to obey the instructions of this board you render yourselves liable to imprisonment," that, I believe, would put a very different face on the matter.

To give a practical illustration in a somewhat different line of violation of sanitary law: A few days since a case of small-pox was reported to the Board of Health of Philadelphia. The inspector found that the head of the family was absent, and that he had, immediately on the discovery of the case, removed three of his children of tender age. The house was quarantined, and an order for the arrest of the man was issued. Brought before a magistrate's court he stated that he had removed his children because he did not wish them to be vaccinated, and that he declined revealing the place of their concealment. The magistrate tried to impress upon him the gravity of his crime against sanitary law, and the danger to which he might be subjecting hundreds of his fellow-citizens, and then again commanding him to give information as to where the children were to be found. He again absolutely refused. Turning to a policeman the magistrate said, "Officer, take this man to a cell." Instantly the man's whole demeanor changed. He made a most humble apology for his conduct, and promised to at once disclose the place where his children were concealed. He did so. The children were at once vaccinated and taken back to his house and placed in strict quarantine. Now, if in this case the board of health could have done nothing but enforce a fine, the man would have snapped his fingers in the face of the magistrate.

If sanitary law is to be worth anything, it must be placed on the same basis with criminal law, so far as the nature, if not the degree, of the punishment is concerned.

Garbage Cremation.

According to the *Inventive Age*, there are now fifty-five towns and cities in England which destroy their garbage and solid refuse by burning, using an average of about ten furnaces each for that purpose. The combustion of the material is used for the generation of steam, by which the streets are electrically illuminated, and other cities are reported to be considering the propriety of reducing their municipal expenses by this means.

The Influence of Habitual Posture on the Symmetry and Health of the Body.¹

BY ELIZA M. MOSHER, M.D.,

Brooklyn, N. Y.

IN connection with several educational institutions, and in the general practice of medicine, it has been my duty to make a careful physical examination of many hundred girls and women. Early in this work I observed variations from the normal symmetry of the body. Some of these variations were demonstrable by tape-measure and calipers. Others, although obvious to the eye, were incapable of measurement. As these cases have multiplied, it has been possible to classify them and to discover, to some extent at least, the influences at work in their production.

It is the object of this paper to present some of the results of this study. The time allotted to it, however, will only permit a discussion of those changes in symmetry which are produced by long-continued habit, best seen, therefore, in individuals at middle life, when, as Emerson says, "The tell-tale body is full of tongues. The wise man reads its private history in its looks, its gait, its behavior."

In order to present the subject clearly, it will be necessary to briefly review the postures which the body naturally takes when in equilibrium, standing and sitting. The human skeleton consists of two symmetrical halves which exactly balance each other. It is clothed by muscles, which, when properly developed and equally used, give to the body its shapeliness and grace. Unevenly developed and unequally used, they have the power to distort and cripple the whole structure. In the standing posture the pelvis (which is practically one solid bone) becomes the pivotal region of the trunk; upon its position the symmetry of the body depends. Balanced equally upon the legs, the crests of the ilia occupy a horizontal place, and move upon an axis which passes vertically through the centre of the sacrum.

The spinal column with its weight of arms and head rests upon the pelvis; with the arms hanging at the sides and the head

¹ Read before the Medical Society of the County of Kings, March 15, 1892. Reprinted from Brooklyn Medical Journal, 1892.

erect, the lateral portions of the body balance each other, so that a line drawn through the spines of the scapulæ is parallel with that drawn transversely through the pelvis, and the axial line of the pelvis prolonged upward traverses the centre of the trunk and head.

Remove either foot from the floor, and the leg, instead of being a support, becomes a weight attached to the pelvis. To maintain its equilibrium upon one foot, the body must shift some other weight to the opposite side of the median line to balance the weight of the unsupported or partially supported leg.

The head and shoulders are used as *counter* weights. If the unsupported leg is thrown forward, they drop backward, and *vice versa*. If it is thrown outward, they fall to the opposite side. In this process of equilibration the spinal column plays a most active part; made up as it is of movable segments, it permits this process of shifting the weights by curving upon itself; shortening upon one side and lengthening upon the other; at the same time rotating, if necessary, upon its axis.

The ribs through their articulation with the spinal vertebræ participate in its movements, becoming approximated upon the concave side of its curve and separated upon its convexity. The scapulæ, being attached to it only by muscles, move with the arms and head, independent somewhat of the movements of the spine. They possess, by virtue of their attachment, however, a powerful leverage upon the dorsal region of the spine.

In the sitting posture the weight of the lower extremities as a modifier of posture is removed. The pelvis becomes fixed in the position which obtained when it rested equally upon both legs.

The lumbar region now becomes the pivot upon which the remainder of the trunk moves. The "balance of power" is vested in the arms, which hang like weights upon the base of an inverted cone; suspended at the sides upon the hip line, they balance each other, permitting the spinal column to poise itself upon the pelvis, and the head to rest upon the spine. This attitude is maintained with comparatively small expenditure of muscular force. Remove the weight of one arm (by supporting the elbow), and the trunk finds its resting-place with the weighted shoulder depressed and the head thrown towards the opposite shoulder. Swing both arms in front of the hips and the normal antero-posterior curve in the upper spine increases, while the head

drops slightly backward, projecting the chin forward; at the same time the scapulæ are drawn apart.

Suspend the arms behind the hips and the upper antero-posterior spinal curve straightens, while the normal corresponding curve in the lower dorsal region increases. Support both elbows and the shoulders approach the head, not only by removal of their weight, but by the sinking of the trunk downward by the force of gravitation.

The posture of the head, owing to the intervention of mobile cervical vertebræ, does not in itself greatly modify the posture of the trunk in standing, whereas, as has been shown, the position of the lower extremities and the movements of the trunk have

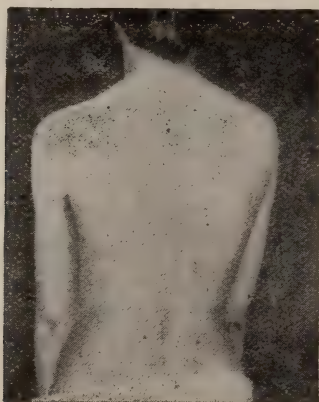


FIG. 1.—Influence of weight of arms on shape of back when suspended *in front* of hip-line.

much to do with the posture of the head. By this brief review it is evident that gravitation (so called) is the great controlling force of the body at rest, and that its work is beneficent, tending to take the place as far as possible of muscular activity in the maintenance of the upright posture both in standing and sitting. The weights are shifted by muscular movement, and when equally placed "gravic force" aids the muscles in maintaining them in position.

Having reviewed the postures which the body naturally assumes with its supports and weights variously adjusted, we are now prepared to consider the influence upon the shape of the

body, of permitting it to fall *habitually* into one of these natural postures.

The will presides over the activity of the skeletal muscles, but it has so much beside with which to occupy its attention that it permits them to do their work more or less automatically, and it happens sooner or later in the life of the individual that certain groups of muscles take upon themselves the larger part of the work of maintaining the body in the standing or sitting posture. Very trivial causes may decide the choice which is to affect the symmetry if not the health of the body. More often, however, *enforced* attitudes, as those of the school-room and the work-shop,



FIG. 2.—Influence of weight of arms on shape of back when suspended *behind* hip-line.

produce this result. In whatever way acquired, the influence upon the shape of the body is potent for good or evil.

I have already spoken of the three fundamental postures which the body assumes in standing,—viz. :

- (1) With both extremities evenly placed beneath the pelvis.
- (2) With one leg thrown forward, as in the attitude of walking.
- (3) With one leg thrown outward or in abduction.

The influence of the first as a favorite posture would be to maintain the symmetry of the body, as by it all its parts are evenly placed. But experience shows that this position cannot long be maintained. Through fatigue one support or the other

drops out from under the weight, whereupon the posture changes to the third of the series. The second position—viz., with one leg in advance of the other, as in walking—permits the body to rest upon one extremity with very slight reduction of the normal spinal curves. The bones of the skeleton are all so placed in this posture as to retain the muscles in normal and symmetrical relations as regards the distance between their origin and insertion, the direction of their fibres, etc. The backward movement of the head and shoulders to balance the weight of the forward leg calls into action the muscles of the cervico-occipital region, while those upon the anterior aspect are placed in an equal degree of extension.



FIG. 3.—Shape of trunk in the "second fundamental posture" (of the author),—viz., resting on the left foot with right thrown forward, as in walking.

The influence of this is to fix the scapulæ and upper ribs in a position favorable to the best action of the respiratory muscles, hence the posture is conducive to chest expansion. The head cannot drop to either side without disturbing the equilibrium of the body, and the soft tissues of the face, which are apt to become distorted by unequal muscular movement and gravitation, retain their symmetry under the influence of this position, even though it become habitual. The internal organs swing evenly upon their supports, presenting thereby no impediment to the blood-current, an element more important perhaps to the health of women than to men. The ease with which the weight of the trunk can be transferred from one extremity to the other not only makes this a

posture which can be retained a long time without undue fatigue, but renders it favorable to the making of gestures and the use of the voice. Hence it naturally becomes the favorite posture of the orator and the public singer.

Because of the narrow base which it gives to the body, however, and the corresponding sense of insecurity which the indi-

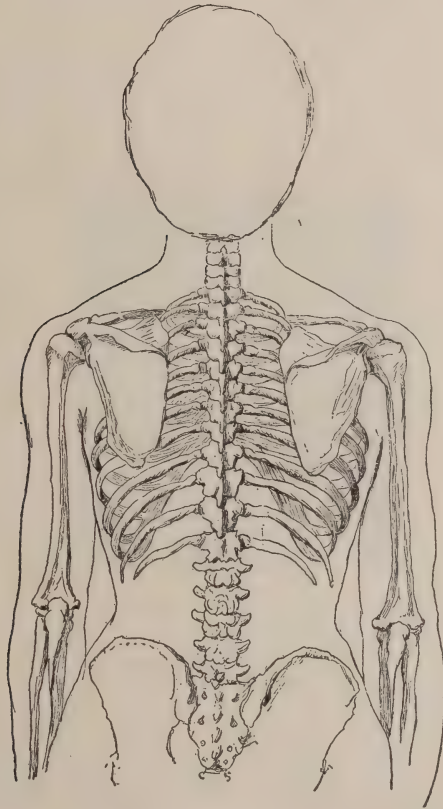


FIG. 4.—Shape of skeleton in “second fundamental posture.”

vidual unaccustomed to it feels, this is not the posture naturally chosen. In standing with a stable foundation beneath the feet, and a little training, it, however, becomes easy to assume it, and it is always healthful.

The third fundamental posture of the body in standing is the one most commonly chosen as the habitual one, doubtless because

of the broader base which it gives, when needed, for the support of the trunk. The change from the walking posture to this, too, is so radical that it gives a sense of rest most grateful to the tired tissues.

The best way to make a critical study of this position with reference to its healthful tendencies or otherwise is to examine an individual whose occupation has for several years necessitated the standing posture, and who has acquired the habit of dropping upon one and the same leg.

Understanding symmetry to mean "exact accordance of the two halves of one body," we place our patient evenly upon two feet and compare the two sides. We find in most cases the fol-

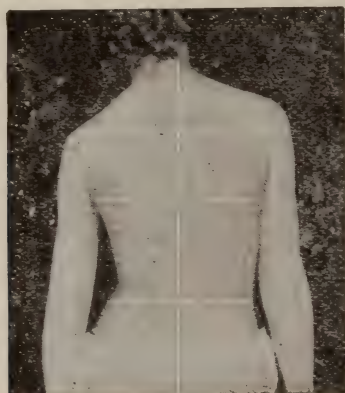


FIG. 5.—Shape of trunk in the "third fundamental posture,"—viz., standing on left foot with right foot adducted.

lowing variations more or less well marked, according to the general health of the individual and the length of time the posture has been habitual. (In robust persons the muscles and soft tissues are not moulded by posture as readily as in the poorly-nourished and overworked.)

If the left extremity has been the favorite one (as it is in a large number of cases) the left thigh will measure a little more than its fellow. The left hip is higher than the right, and the spinal column is slightly curved, presenting its concavity towards the supported side. In exaggerated cases, and when the right arm has been much used, a compensatory curve is found in the

upper dorsal region, the concavity of which presents in the opposite direction. In all cases there is marked projection of the angles of the ribs upon the unsupported side, indicating more or less rotation of the bodies of the spinal vertebræ towards the right. The ribs upon the left side approach each other and the crest of the ilium, shortening in a very marked manner the body line

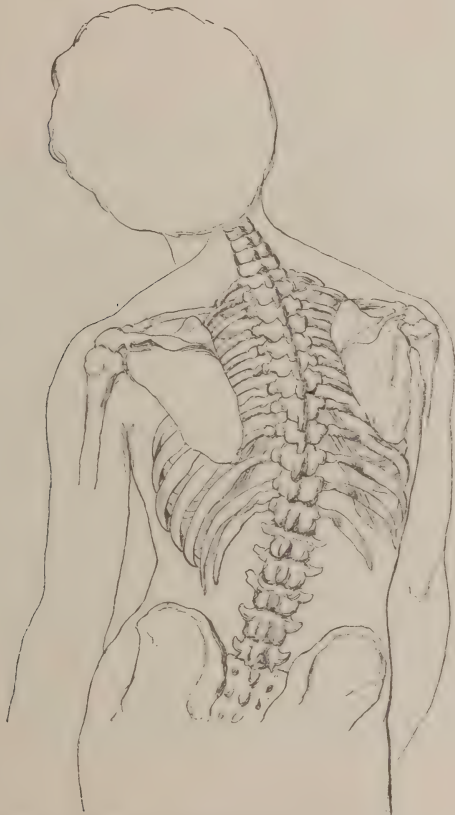


FIG. 6.—Shape of skeleton in "third fundamental posture."

upon that side. The spaces between the ribs on the right side are proportionately widened, and the lengthened body line lacks the curve presented by the opposite side. The left shoulder is lower than the right. The left hand accordingly reaches a lower point upon the thigh than does its fellow.

The shoulder lines are unsymmetrical and the vertex drops

towards the left shoulder while the chin points towards the opposite side. There is marked loss of symmetry in the two sides of the face, due to the influence of gravitation and unequal muscular activity. Unmodified by defects of sight or hearing, or by a variation in the length of the extremities, the lines of the face always



FIG. 7.—Asymmetry of face in girl of 15, produced by habitual use of "third fundamental posture,"—viz., resting on *right* foot with the left abducted. Right eye oval. Left eye linear. Right cheek fold partially erased. Left cheek fold deepened. Tip of nose to right of median line of face. Right nostril dilated. Left nostril flattened. Right angle of mouth lower than left.

manifest the following deviations from the normal in all cases where this posture has become habitual.

With the head tipped to the left side the angle of the jaw becomes the lowest portion of the face, hence, the soft tissues of the

cheeks gravitate in that direction, producing a rounded contour on the left side in contrast with the flattened outline of the other side.

The angle of the mouth usually drops a little upon the downward side; sometimes, however, it becomes elevated instead. The median line of the nose frequently inclines to the left as it approaches the tip, and the ala is drawn upward by its levator muscle, shortening the distance between the angle of the nose and the eye, as compared with the corresponding line on the opposite side.

The left nostril is dilated and more movable than the right. The septum narium being drawn towards that side below tends to project in the opposite direction above, thus occluding, to some extent, the cavity of the nose in the region of the right middle turbinated bone. The cheek-fold becomes more or less erased on the left (by gravitation of tissue outward), while on the right the same force deepens and elongates it. The left lower lid is pulled slightly downward and outward, increasing the breadth of the opening at the outer canthus. The same tractile force applied to the right eye from the nasal side lengthens, or seems to lengthen, the opening, at the same time widening the space at the inner canthus, hence the left eye becomes oval and the right linear in well-marked cases.

The facial muscles, owing to their insertion into the soft tissue of the cheek and into each other, participate in the changed relation of parts. Because of greater freedom of movement upon the left side the muscles become more mobile than those upon the flattened side. As a result of this they retain their tone, becoming, perhaps, in some cases slightly hypertrophied, while those of the opposite cheek, through disuse, approach the condition which obtains in paraplegia facialis. Lack of symmetry in the two halves of the face has long been observed by artists and photographers, but the casual observer seldom takes note of it until his attention is called especially to the subject.

The changes in the face which I have here pointed out are all produced by carrying the head on the same side, whatever the cause. Most often, however, it occurs as a result of standing and sitting with the trunk tilted to one side. When asymmetry is produced by defective vision the face-lines differ from those described, according to the angle at which the best refraction is obtained.

It will readily be seen that it is important for the general

physician, as well as the specialist, to recognize the significance of facial asymmetry in order to utilize it as an aid to diagnosis, as well as to enable him to remedy faulty habits of posture, which, in time, are sure to distort the features.

The neck muscles tell the story of habitual posture more loudly, if possible, than do the lines of the face. Those which are attached to the occipital ridge and basilar process participate most markedly in the changes observed elsewhere. The sternocleido-mastoid and trapezius muscles become tense, and limit the bending of the head towards the high shoulder in these cases, so that inspection of these alone betrays the habitual posture of the head.

The muscles which rotate the face towards the right shoulder,—viz., the left complexus, rectus capitis posticus minor and superior oblique, obtain a greater degree of development than their fellows, hence the greater fulness of the neck, which may be observed upon the left side posteriorly. (This fact may, in some cases, account for the fatigue and pain in this region complained of so frequently by patients who are overworked.)

If the head does not incline towards the left shoulder in an individual who habitually rests on the left leg in the posture described, and there is no defect of vision or hearing, it is safe to conclude that the right leg is short, in which case the head is not needed as ballast. Indeed, if there is a marked difference in the length of the extremities, the weight of the head is transferred to the side of the short leg in order to balance the body. The low shoulder and shortened body line are still found upon the supported side. The external skeletal muscles are not the only ones involved in this process of change. The extra-ocular groups are, to say the least, placed at a disadvantage in the sidewise posture of the head. The obliques, especially, are forced to do more than their share of the work of rotation of the eyeball. No observations have as yet been made which demonstrate special abnormal conditions thus produced, but it is not unreasonable to include this posture among the causes of inco-ordination of the extra-ocular muscles. That the septum narium is deflected by it more or less in all cases there is no doubt. The prevalence of this habit of posture, coupled with the frequency of occurrence of nasal disease, produced by deflection of the septum, renders the presumption a safe one that the two are related to some extent, as cause and effect.

The pharyngeal muscles participate almost invariably in the general loss of symmetry. Taking origin, as they do, from the base of the skull, they are so placed in sidewise postures of the head as to work with origin and insertion approximated on the low side, while the opposite condition prevails upon the elevated side. The effect of this is seen in the high and firm palatal arches on the one side as compared with the relaxed and drooping ones on the other. What influence, if any, upon the health of the pharynx the unequal activity thus produced may have, has not been determined, so far as I know. It is an interesting fact, however, that in the shape of the interior of the nose and throat we may find an intimation in reference to the habitual posture of the individual.

In a large number of the cases studied there was a demonstrable increase in the size of the chest upon the supported side. This is probably due to several causes, mainly, however, to the position of the scapula, which has its posterior border approximated to the spinal column. Fixed in this attitude by the rhomboidei muscles, it places not only the serratus magnus but other respiratory muscles in the best possible attitude for contraction, whereas the opposite condition obtains upon the unsupported side. Here the scapula recedes from the spine, and has its posterior border everted. The rhomboidei muscles are stretched and weakened and the normal direction of the fibres of the serratus magnus is changed.

The rotation of the bodies of the spinal vertebræ to the right interferes also to some extent with the movement of the ribs. It is evident that these influences are capable of diminishing the capacity of the chest on that side. How much such a variation predisposes to disease it would be unwise to premise in the absence of conclusive evidence. It is certain, however, that the diagnostician should be familiar with this variation and its cause. Shortening of the abdominal wall on the supported side by the approximation of the ribs and ilium displaces the intestines downward and towards the opposite side. The effect of this upon the already relaxed and lengthened abdominal wall may predispose to the production of hernia.

The pelvic organs of women doubtless undergo more positive injury from this posture than do any others in the body. The uterus is crowded towards the supported side by the displaced intestines. The broad ligament upon the opposite side is placed under tension, which, in time, lengthens and weakens it as a ute-

rine support. At the same time the one upon the elevated side gradually shortens under disuse. The round ligaments suffer in the same way, and the final result is permanent deflection of the uterus and ovaries, whose circulation is interfered with in proportion as the vessels become tortuous upon the side of the shortened tissues.

The more common posture upon the *left* foot is probably more productive of harm than that upon the opposite one, for the reason that it places the uterus and ovaries on the left side of the pelvis in close contact with the rectum, and immediately below the sigmoid flexure. Mechanical pressure, due to an inactive condition of the bowels, is likely to occur as a result of this close contact, especially during the menstrual epoch.



FIG. 8.

I do not know the microscopic condition of muscles which have become shortened by habitual approximation of their extremities, nor of those which have undergone continuous stretching. The gross effect upon the former is to increase their size, at the same time lessening their elasticity, while the latter become attenuated under the slow lengthening process. Neither condition tends to increase their usefulness; on the contrary, the tendency is in the direction of weakness and premature loss of power.

Every occupation presents temptations to the body to acquire a habit of posture which, in time, modifies the shape of the individual. The school-girl, who habitually sits with one elbow sup-

ported and head to the opposite side, is likely to acquire the body shape which I have described in connection with a right or left abducted leg. The carrying of her books upon the left arm, as is the habit of girls, tends to modify or increase the lateral curvature produced by sitting and standing. The woman who sews by hand acquires a low right shoulder; while the one who habitually uses a machine, upon which both arms rest, tends to become high-shouldered with symmetrical body lines. The man who stands at a desk with arms supported, in time, assumes the same shape. The sailor who climbs the masts acquires a similar shape, although in a different way. The man of letters, with head forward and chin depressed, elongates his cervico-occipito-muscles, so that at middle life we recognize him without difficulty. The drug and dry-goods clerk, if right-handed, works with left foot thrown to the side and body to the right; both arms in front of the hip line. The resultant shape we are all familiar with if at all observant. The horse-car driver, as he stands with his right hand on the brake and left on the dash-board, acquires a "left-foot twist" in accordance with this posture. The truck-driver, who sits with arms forward holding his reins, is a characteristic figure. The man who digs the street, the bricklayer, and the hod-carrier all assume, in time, their own trade-mark.

So general is the tendency to acquire habits of posture, we must accept it as a law of life. What influence it shall have upon the symmetry and health of the body depends upon the posture. Those postures which limit chest expansion, which curve the spine abnormally, which displace the viscera and distort the features, cannot be otherwise than harmful in themselves, although the body is long-suffering, and, if allowed sufficient time, adapts itself as far as possible to unhealthy conditions.

To recapitulate: There are three fundamental postures in which the body in the upright equilibrates. A certain amount of muscular force is required to retain it in any of these positions. The first posture is not practicable as an habitual one, because it does not admit of alternation in the use of the lower extremities. The second places the body in the most symmetrical attitude it can take, and at the same time permit the alternate use of its supports. This is a posture not naturally chosen, but easily acquired by training. The third, which is the favorite posture of mankind, is harmful in its tendencies, both as regards its influence upon the symmetry of the body and the economic and healthful use of its

complex machinery. Its adoption, then, should be deprecated, and especially so in our schools and stores.

The shape of the body in the sitting posture is greatly dependent upon the position of the arms and head. The one which best maintains the symmetry of the trunk, and therefore is most healthful, is that in which the spinal column balances upon the pelvis with the arms at the sides and the head upright. This posture is the one which the body should be trained to assume in the school-room, the work-shop, and the carriage.

Hygienic Training of Men in Charge of Railway Trains.¹

BY GRANVILLE P. CONN, A.M., M.D.,

Concord, N. H.,

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CONSIDERING it a self-evident truth that any person having a profession or vocation should be educated in the same so far as to be able to perform good and efficient service, otherwise he cannot satisfy the public demand for skilful workmanship or the faithful performance of every duty. In a business way it is to be expected that every person engaging to perform mental or manual labor will have the training necessary to do the work in a manner to be acceptable, and trainmen should not be an exception to the general rule.

Men are not taken into shops with other mechanics until they have perfected themselves to a certain degree in the use of tools and in the economical use of material.

It is true every railroad has its rules and regulations governing the moving of trains, and specifying more or less minutely the duties of trainmen, but it was not until very recently that it was considered necessary to have a school of instruction.

On going to work, every trainman is given a copy of rules and regulations with his time-card. These instructions are complex, having been often amended to meet some heretofore unseen,

¹ Read before the Section on Medico-Legal Surgery of the Medico-Legal Society at New York, November 15, 1894.

and therefore unknown, emergency, and it would require hard and long study on the part of the well-educated to pass a fair examination before a board of experts in such work. Most roads incorporate into their rules governing train-work some general regulations designed to secure hygienic conditions on trains and about their grounds and stations.

The conductor is usually made responsible for the enforcement of those rules, which generally read like the following :

RULE 154. Must see that the brakemen attend properly to the fire and lights, and that they keep the cars well supplied with fuel and water, and do not detach the bell-cord, nor allow it to be done until the train reaches a station, or has arrived at the terminus of the route. Particular attention must be given to *ventilation* of cars. Conductors will not be excused for allowing brakemen to neglect this duty.

The conductor, being responsible for the safe transit of his train, has but little time to bestow upon the education of his trainmen, and if his attention is called to the unwholesome condition prevailing in a car, it will be because some one speaks to him about it, or because his senses are assailed by nauseous odors that prevail by reason of the exhalations incident to overcrowding in unventilated apartments.

So much by way of an introduction to a necessity of some reform. What shall be done to overcome some of these evils? Probably I have said enough to indicate that some other form of educating the trainman in his work seems like a necessity. How shall this be accomplished and not have the cost in excess of the compensation?

This is the great problem to be solved, for the management of railroads, like all other good businessmen, rarely put out money in their labor to serve the public, without an expectation of a return in the shape of a dividend on the investment. In educating a trainman in hygiene, I would include all the work he is expected to perform about a passenger-train, for surely no part of his work but relates directly or indirectly to the welfare of his own life, or the health and comfort of the passengers. In carrying out the principles of such reform, I would respectfully suggest :

(1) A rigid physical examination of all new recruits before entering the service.

(2) A school of instruction, enlarged from such as are now in use on some roads, drilling the men in the way to bring

out the best results of all safety appliances, including those intended to supply the heating, lighting, ventilating, and cleaning of cars.

(3) After being thoroughly instructed in every duty that can in any way serve to render the lives and property of all concerned safe and comfortable, the new recruit should be advised of the fact that, in taking service upon a railroad, he is entering upon a vocation extra-hazardous in its nature, and having been thoroughly instructed in his work he must take certain amount of chances of his life and limbs without recourse or damages.

(1) A physical examination of a recruit should be as thorough as it would be to enter the United States army, in order that it should be reasonably sure that he is not idiotic, an epileptic, a victim of intemperance or kleptomania, nor that he has a predisposition to be ungentlemanly in his behavior towards others. Color-blindness, astigmatism, deafness, partial paralysis, mutilation or ankylosis of the fingers, rheumatic enlargement of the joints, pleuritic adhesions, chronic diarrhoea, asthma, and functional or organic disease of the heart should be noted, and any approach to either of these being serious should serve to disqualify him for any place or position on a train that might in any event compromise his own safety or the lives of the public. Not until he had passed this physical examination should he be admitted to the school of instruction. It would seem to be unnecessary to comment upon anything so plain as that it is desirable to have only those in the service as would pass a physical examination, and I would not intimate that any corporation intended to employ those who would be physically disqualified, yet without examination it is quite impossible to prevent such men from being employed.

The young man having no physical defect, and fairly well educated, will hesitate from seeking service of an extra-hazardous character, unless his ambition prompts him to believe that it will very soon lead to a position higher than train-work. The pay of the ordinary trainman is not equal to that of the skilled mechanic, and it is because there is no examination—mental or physical—that so many drift into the ranks. There seems to be a fascination for a certain class of young men to be around and riding on trains. As automatic brakes have been introduced, the hard work of the trainmen has been set aside, until there was some reason for an official making this remark about brakemen, "They have

been relieved from year to year of their former duties, until they feel that all they need to do is to wear a uniform." That it is a fad for some people to want employment of an extra-hazardous kind, like being trainmen, is only another good reason why a physical examination should be required before they are engaged.

(2) After having passed the required physical examination, the mental and manual school of train service should commence. He should be drilled in his duties as trainman until he is familiar with the operation of the train and hand-brake ; in the use of signals ; and in the inspection of every part of a car and its trucks. He should also be taught how to make such repairs and use expedients as may be of use in cases of accident. The automatic brake has been in constant use for many years, yet it has been found necessary on some roads to fit up a car with all the latest improvements, and, with a competent instructor, to go from one division point to another, form the men into small classes, and teach them not only the ordinary manipulation of the power-brake on trains having a clear track, but the possible extraordinary application of the same appliance when emergencies arise. It is understood that such instruction is considered a good investment in teaching the men many practical ideas that were not familiar to them, because nothing had occurred to bring out the possible power of the automatic machine, under circumstances requiring quick thought and action. In matters pertaining to the hygiene of passenger cars, trainmen should be taught how to use every device for heating, lighting, ventilating, and cleaning of coaches, as well as how to make slight repairs, and while it may not be generally expected that trainmen will attend to the cleaning of their coaches, yet he should be instructed how it should be accomplished, in order that he may at a glance be able to inspect and report upon the sanitary condition of a car before it leaves the train-house.

In mechanical work, as in other exigencies which the mind is intended to provide for, it is not the expected results which cause the most trouble, but it is the unexpected dangers to which we are exposed that bring the greatest damage and loss. Train-work is no exception to this rule, and every man should be educated what to do under all possible circumstances,—should be taught to think for themselves what they would do under hypothetical complications, for surely there is no time for

instruction when the critical moment comes which requires action.

They should be taught that the general condition of train-work is much the same, whether it be hygienic or mechanical, for it is communal rather than individual, as whatever secures comfortable conditions to one should be free to all. They must be something more than an automaton, opening or closing all the transoms (if there are any) at once, and when the train stops, to close the doors in summer and to leave them open in winter; turn on full pressure of steam and never a thought whether the temperature is 50° or 150° F. Such a man would not be likely to make any effort to secure clean, wholesome conditions for the inside of a coach, but would, without any conscientious scruples whatever, contribute his quota of refuse whatever he could coax the newsboy to give him credit for, a bag of peanuts or a half dozen bananas. Such men were never brought up to take care of waste and effete refuse, therefore have no idea how to effect a reform in others, who so far forget themselves as to trespass upon the rights and good nature of companions in committing acts in public places that they would never think of doing in a private house. It is true that a reform in this direction applies to the passengers and trainmen alike, and would it not be for the public good that orders to this effect should be posted by the management in every car and waiting-room in the same manner as may now be seen in depots, to warn people against having their pockets picked or to prevent taking the wrong train.

The mere fact that the situation in a car is public and communal should be a bar to many things being done that might not be considered out of place in an individual owning his house.

It is quite true that no amount of teaching or legislation will furnish brains to the brainless, nor develop a true gentleman out of a natural boor, yet constant association with those who have a just appreciation of what constitutes good and efficient train-work must have its influence in rounding away the angular points of a man's character, else he is too dull and stupid to be allowed to imperil his own and the lives of others by having anything to do with machinery or mechanical appliances.

(3) After passing the standard examination required by a board constituted for this work, and before an applicant for a position should be allowed to commence work, he should be apprised that his work is considered extra-hazardous, and that in

accepting service with that knowledge, he must assume risks to life and limb that would not obtain in other vocations. That his work is extra-hazardous is sustained by the fact that life and all forms of accident insurance companies class them as such, and charge more premiums than other workmen pay. That a trainman, after having been taught his duties, and in proof of that fact has passed the standard examination in which his hazardous duties had been duly explained, must assume certain personal risks, it is only necessary to cite a decision of the Supreme Court of New Hampshire, which Justice Smith gave in the following language, as reported by the daily press :

Casey vs. G. T. Ry. : "Held that the plaintiff was fully acquainted with the dangers of the service he assumed, and so cannot recover for the injuries received."

(4) It is possible we might be justified in making a still further point in the fact that all railroads being held responsible as common carriers for the safe transit of persons and property, might it not be an open question whether the corporation does not place itself in a position of contributory neglect, unless by means of thorough instruction its trainmen are well qualified and vouched for. I leave this to the Society for discussion.

In support of this proposition I will make a single quotation from the text-book.

I do not understand that the obligation of the defendant would be discharged by informing the servant generally that the service engaged in is dangerous ; especially where the servant is a person who, neither by experience nor education, has, or would be likely to have, any knowledge of the perils of the business, either latent or patent ; but that in such case the servant should be informed not only that the service is dangerous, and of the perils of a particular place, but where extraordinary risks are or may be encountered, if known to the master, or should be known by him, the servant should be warned of these, their character and extent, so far as possible. It seems to me the value of human life and the duty of the master in affording reasonable protection to persons, while under his direction, cannot be held to require less than this.—Cooley on Torts, p. 554.

I wish it distinctly understood that I do not for a moment believe that a manager of a road would knowingly employ an unsafe man, but until there is some system adopted for a thorough examination there is much reason in supposing they may and will be imposed upon.

It may be truly said that while all this is a step in the right direction, it will involve too much expense to find favor. Granted that some expense will be incurred, yet it need not be very great, especially on such roads as have a chief surgeon, for with a board composed of a master mechanic, a train-master, and chief surgeon, you have all the requisites for bringing to the front a class of young men who would be useful wherever they are placed.

I suspect we might reasonably claim that if our railway managers would effect a reform, in which safety and comfortable travelling would be assured, it would pay liberally in the advertising it would give their lines, for while the public are becoming critical in these matters, yet a reform would be hailed with approval by all travellers, and would soon become a part of the newspaper literature of the day, as embodied in their letters to their friends and the press. When this matter is brought to the attention of the manager, the passenger, and the trainman, in such a manner as to set forth the possibilities of considerable reform being brought about that would give the public superior accommodations at a minimum of expense, it will not be long before every person seeking employment as a trainman will find that a physical examination is a preliminary to an appearance before a regular board of examination, who will inquire into the mental and moral qualifications he may present for an important and responsible position on a train. This, in due time, would bring into the service a higher order of employés, develop a higher standard of work, and tend to the moral and physical elevation of the man, all of which would materially assist the corporation to pay increased dividends by preventing accidents in which life and property are sacrificed.

The Advantages of a Cheerful Disposition.

In a specimen advance proof of a forthcoming autobiographical dictionary of "Physicians and Surgeons of America," one gentleman gives the following example of cheerfulness under difficulties: "My life has been a struggle from the beginning, but I have laughed at difficulties and whistled and sung when some others would have died. Twice in life I have lost all I had, and on the night following a knowledge that I was ruined financially, I went to bed and was asleep while my dear wife was preparing to retire. There is but one thing that can conquer me, and he is the conqueror of all—Death. 'Ay, there's the rub!'"

Filtration of Schuylkill Water.

BY FRANK J. FURTH,

Germantown, Philadelphia.



THE editorial in your issue of November, 1894, entitled "*Don't Filter the Water*," concludes, "Don't waste money on a system of filtration that will still further postpone the acquisition of a new source of supply." Our situation in Philadelphia to-day is that we are dependent for our water-supply largely upon the Schuylkill River and to a limited extent upon the Delaware River.

To secure a new source of supply will involve an agreement upon what this new source shall be,—not an easy task,—and then an expenditure of from twenty to two hundred millions of dollars, depending upon which of the various sources that have been vigorously advocated may be finally adopted. The city of Philadelphia has no way open in the present, or in the near future, by which even the smallest of the above-named sums may be made available.

A satisfactory "new source of supply" is not practically possible at any reasonably early date. We are, therefore, obliged to accept it as a fact that we must, for some time to come, accept the Schuylkill, and, to a limited extent, the Delaware as our source of supply.

It is a further fact that our supply of water is at times insufficient in quantity and is unsatisfactory in quality. Whether unwholesome or not, it is so charged with mud or coal-mine washings as to be unfit for any household use. The question then appears to be, How may we improve the quantity and quality of our water from the present sources of supply? This may be done,—

(1) By providing and maintaining an ample and efficient pumping and delivery service.

(2) By providing storage and subsiding reservoirs of ample capacity to store several weeks' supply for the entire city.

(3) By creating, in connection with these reservoirs, as rapidly as may be possible, filtration plants, so that the water passing into the reservoirs may be clean and more wholesome than can be secured under present methods.

No matter where we may ultimately go for our city water, it will be necessary to have a large storage reservoir capacity within the city limits and a proper distributing system. Money expended in this way cannot be wasted under any probable future conditions.

Wherever our future supply may come from, it is unlikely that the water will at all times and under all conditions come to us so pure and clean that filtration will not improve it.

While we are thus reasonably sure that money now expended upon a city filter plant cannot be wholly wasted under any probable future condition, we are absolutely sure that filtration will confer upon the city a great present benefit at small cost. It will give us clean water for household and manufacturing uses, and, if we are to judge from the practical experience of other cities where filtration has been resorted to, it will at once largely decrease our deaths from preventable diseases, saving us perhaps 400 to 500 lives per annum, and the service of an equivalent of 200 to 300 citizens per annum, whose time is now lost as wage-earners through preventable illness, from which recovery is slow and often imperfect. I venture to hope that the influence of your valuable journal may be exerted in favor of filtration as the only practicable method for effecting a prompt improvement in the water-supply of the city of Philadelphia.

Unregarded Causes of Ill-Health in American Women.¹

BY JOHN FORD BARBOUR, M.D.,
Louisville, Ky.



THAT ill-health is more common among American women of the middle and higher classes than among the women of other nations is proved by a great many considerations. In the first place, we have the testimony of many eminent physicians on this point. Dr. Austin Flint, Sr., is said to have declared that if things went on as they are now going, in fifty years it would be wellnigh impossible to find a healthy woman of American descent. Numerous articles have appeared in the medical magazines by such writers as Dr. Mary Putnam-Jacobi, Dr. Engelmann, and many others,

¹ From the *American Therapist*.

calling attention to the alarming and increasing prevalence of ile health among American women. We have in addition the testimony of such close and careful observers as our novelists, Howells and James, which is of even greater value, as coming from laymen, who would naturally not be so quick to notice such things as physicians. Howells speaks of the "typical American girl, never very sick and never very well." Do we not all know her? And again and again he speaks of her lack of physical development as compared with her European sisters. James, in one of his stories, describes a little girl who comes dashing into the hotel parlor on roller-skates, crying, "Get out of the way." One can see all too plainly from his description the typical American little girl, with her weak ankles, her thin, flat chest, her feeble little arms and legs, and her lack of proper parental control. Again, in "A Bundle of Letters," he makes one of his heroines say, "The types here, excepting myself, are exclusively feminine. We are thin, my dear Harvard; we are pale; we are sharp. There is something meagre about us; our line is wanting in roundness, our composition in richness. The American temperament is represented by two young girls. These young girls are rather curious types. They are cold, slim, sexless; the physique is not generous, not abundant; it is only the drapery that is abundant."

The bearing of two or three feeble children ought not to make a physical wreck of a woman; but how often do we see this the case? Compare the American mother—with her sick-headache, her general physical inefficiency, her everlasting doctors' and druggists' bills, and her two or three delicate, bottle-fed children—with the stout, active German or English matron, and her sturdy brood of eight or ten, every one of whom she has nursed at her own breast.

Let the reader take his stand at some fashionable street-corner on a sunny afternoon and notice carefully the women who pass by. They will show by their sallow complexions, thin, flat chests, angular figures, and miserable gait all the evidences of present or impending ill-health. He will hardly find one woman out of ten with bright eyes, a clear complexion, an erect carriage, and a firm step.

It is simply impossible for human beings to live as most American women live and have good health. After a girl puts on long dresses she is taught that almost any sort of active bodily movement is unladylike. Her frail little body is enveloped in

corsets, which effectually prevents the full development of the important trunk-muscles. At school she gets perhaps a little make-belief of calisthenics. During her life in society she waltzes with great ardor, it is true ; and it is said that to go through all the evolutions of a German is equivalent to a walk of fifteen miles ; but no one has ever seriously claimed that this form of exercise is conducive to health. After marrying, the American woman reduces physical exertion to the minimum. Any form of physical labor is regarded by her as menial. If the weather is bad she will not put her foot out of the house for whole days at a time. If she does go out, often she will take a car to ride two squares.

American women take more drugs than other women. The drug-store is ubiquitous with us. They show increased susceptibility to stimulants and narcotics, sensitiveness of the digestion, increase of near-sightedness, and weakness of the eyes, early and rapid decay of the teeth, sensitiveness to heat and cold, tendency to nervous exhaustion, etc.

Gynæcology and abdominal surgery are American contributions to medical science.

This state of affairs is not limited to any particular section of the United States, but extends from Maine to California, and from Dan even unto Beersheba. It is national in its scope. The fact is that ill-health is so common in our women that we have grown accustomed to it, and have, quite unconsciously, set up a low standard of feminine health. If a woman is habitually constipated, dyspeptic, so weak that she can hardly walk a mile, has one or two headaches every month, irregular and painful menstruation, backache, napeache, cold hands and feet, leucorrhœa, capricious appetite, and a moderate degree of nervousness and insomnia, she is considered to possess average good health. If she is free from all these, it is a rare exception, a fortunate accident, not a condition of health to be attained by the exercise of reason and common sense.

What, then, are the causes for ill-health which are peculiar to American women ? These may be divided into two classes,—viz., the unavoidable and the avoidable. Let us briefly survey the unavoidable causes.

By far the most potent of these is our climate, which differs from that of Europe in three respects : it is more variable, the extremes of heat and cold are greater, and the atmosphere is drier

The reason for the extreme variability of our climate is found in the fact that our mountain chains run north and south, while those of Europe run east and west. In consequence of this, when up in Manitoba Territory King Æolus reverses his spear and smites upon the side of the mountain, rude Boreas comes whistling down upon us with hardly a moment's notice, except a hasty telegram from Washington with the announcement that the thermometer will fall forty degrees in the next twenty-four hours. This is followed by nearly as rapid a rise in the temperature.

The extremes of our climate keep us house-bound for a large part of the year, and this is a very potent factor of ill-health. There are few portions of the country where it is agreeable to be out of doors for as many as a hundred days of the year.

The effect of a dry, variable, extreme climate is to stimulate powerfully the nervous system and keep it on the *qui vive*.

The liberty and enlarged scope of thought and action which American women enjoy must also be considered as causes of ill-health. How much more nervous energy an active, ambitious, American woman must expend than a German matron, with her placid, narrow life.

There are many other unavoidable causes of ill-health in American women which need not be discussed here. Let us rather turn our attention to the more practical consideration of the avoidable causes of ill-health in our women. While there are very many of these, it has seemed to the writer that the following are the principal ones :

- (1) Lack of general exercise.
- (2) Lack of specific exercise.
- (3) Lack of abdominal breathing.
- (4) Improper modes of dress.
- (5) Superstition.

As every one is aware, there are three causes for the circulation of the blood :

- (a) The contraction of the heart.
- (b) Contraction of the voluntary muscles.
- (c) The contraction of the diaphragm.

American women attempt to dispense with the last two ; they neither take exercise nor do they breathe with the diaphragm. The muscles act precisely like the bulb of a Davidson syringe,—when they contract, the blood is forced into the veins ; when they relax, a new supply flows in.

Dubois-Reymond determined by experiment that the minimum amount of exercise necessary to maintain the circulation is equivalent to a walk of five miles a day. American women do not average one-fifth of this amount.

The diaphragm acts like the piston of a great pump, rising and falling sixteen times a minute, and pumping the blood out of the abdominal and pelvic cavities. Where its stroke is only one-half or one-third the normal, the amount of blood raised must be correspondingly less. The investigations of Dr. Thos. J. Mays, of Philadelphia, and of Dr. J. H. Kellogg, of Battle Creek, Mich., have shown that women ought to breathe precisely as men do. The thoracic type of respiration in women is entirely artificial, and is not, as physiologists have claimed, a wise provision of nature, having in view the restriction of the movements of the diaphragm during pregnancy.

The second cause assigned for the ill-health of American women is lack of specific exercise. All exercise is not of equal value; exercise of the arms and legs, while of great value, is relatively far less important than exercise of the trunk-muscles, for the reason that the circulation through the thoracic, abdominal, and pelvic cavities is dependent upon exercise of the muscles surrounding these cavities. When the trunk-muscles are not freely and systematically exercised, the circulation through the lungs and through the abdominal and pelvic organs becomes feeble, and the functions of these organs are imperfectly fulfilled.

We have now arrived at the point where we can trace, step by step, the evolution of ill-health in the American woman. Her undeveloped body is encased in corsets when she is 15 years old. At school she learns a great many things, but is not taught that in order to have good health she must exercise the muscles of her body, and especially those of the trunk, daily and systematically. After marriage she settles down to a life of physical inactivity; she takes hardly any exercise, and even this little is not taken systematically; she does not breathe with the diaphragm; her circulation becomes feeble, her hands and feet are always cold, the blood accumulates in her abdominal and pelvic cavities, the functions of the abdominal and pelvic viscera are imperfectly carried on; she becomes dyspeptic, her stomach is distended with gas, her liver and intestines are torpid, the waste products of the system are not carried off, but accumulate in the blood. The opinion is constantly gaining ground that most of the functional nervous disturbances in women are due to auto-intoxication.

By-and-by the pelvic organs begin to show signs of disease. When one hears of the daily exploits of the abdominal surgeon, and learns that there is hardly one woman out of five who has not some form of pelvic disturbance, the conviction forces itself upon the mind that surely our women must be grossly violating some fundamental law of health. We have traced out the chain of physical causes which lead inevitably to a stasis in the abdominal and pelvic circulation. As a further result of this stasis there occurs a sagging of the abdominal and pelvic viscera, and, as the latter are underneath, they catch the worst of it. Malpositions of the uterus are produced; the power of resistance of the pelvic tissues to invasion by pathogenic microbes is lowered; the tendency to plastic exudations is increased; the resolution of inflammatory processes is very much retarded, and thus the foundation for every variety of pelvic disease is laid.

The last cause assigned for ill-health in American women is superstition,—not religious but pharmaceutical superstition. The sublime faith with which an American woman will continue to swallow nauseous drugs in the belief that they will restore her to health and keep her in health is only equalled by her faith in cosmetics. Drugs are wonderful things in their place, but it is not possible by any combination of drugs to replace the natural processes of health.

How are we to forestall this most serious of all our national evils, the physical degeneracy of American women? This matter is far too widespread and serious to be rectified by a little Anglo-mania, a little calisthenics, a little athletic craze. There are far too many women who lead lives that can only be characterized as parasitic; who have no independent existence, but merely cling to life like a polyp to a rock. They generate barely enough nervous energy to eat, drink, sleep, dress, take a great deal of medicine, complain constantly, and finally drop out of life without leaving the slightest vacuum.

The only way to meet this great evil is to introduce physical culture into our schools and make it compulsory.

Any man who does not take time for exercise will probably have to make time to be ill.

Exercise will help a young man to lead a chaste life.

An Original Wash for the Complexion.¹

NETTIE HOOPER, in a recent Parisian letter to the *Philadelphia Evening Telegraph*, states that Paris has just been edified by the publication of a work treating on the life of a lady of the sixteenth century, who carried her care for her beauty to the very utmost limits. This is a sober, historical fact, backed by many official documents of undoubted authenticity. The lady in question was Elizabeth Bathory, who married at the age of 15, in 1595, Comte François Nadasdy, who was not of too mild nature himself, as, when his wife complained one day that her maid had been impertinent, he ordered the erring handmaiden stripped, smeared with honey and laid on a wasp's nest, from the effects of which gentle admonition she subsequently died. The Countess was left a widow in 1604, and began simply at first to try to keep up the rigorous discipline enforced by her late husband. Unhappily, one day she struck her waiting-maid, and so wounded her that her mistress's hands were covered with blood. When they were washed, the Countess remarked that her hands were whiter, and the skin more supple and firm, and thenceforward her naturally cruel nature was spurred by the frenzied desire to retain her waning beauty at any price. She used as a cosmetic from that time on a bath of human blood, and the tradition goes that anything so superb in its brilliant fairness as her complexion cannot be imagined. She murdered all her waiting-maids, one by one, aided by three accomplices, her old nurse being one of them, and when she could get no woman to enter her service, she coolly sent her emissaries to kidnap the peasant girls of the neighborhood.

At last, however, even Hungary in the Middle Ages could not afford to close its ears to the wail of the bereaved families; and the culprit's first cousin, governor of the province, entered the castle on Christmas eve, 1610, to inquire into the truth of these horrible stories, and discovered his fair and honored relative calmly watching the death agonies of three girls, while her attendants were filling a bath with the life blood that was to preserve her beauty. The Countess herself was too great a personage to incur capital punishment, but for thirty years she was shut up

¹ From the College and Clinical Record.

in solitary confinement in the castle of Csiebbe, where she finally starved herself to death. Her accomplices had their hands cut off, and were subsequently burned at the stake, as, being common people, there was no reason for sparing their lives. It is said that this fair dame sacrificed 600 girls to her radiance of skin, but the biographer states soberly that documentary evidence exists of the murder of only 250, which was a very respectable number to get rid of in six years' time.

An account of the lady's proceedings has just been read before the French Academy of Medicine, and she has been pronounced to have been undoubtedly insane; but if so, it must be confessed that her madness was curiously methodical.

Virulence of Poison Ivy.

Poison ivy and the characteristic inflammation produced by it are known in different localities by several aliases. It appears not only as a vine, but as a bush of considerable size, and grows abundantly almost everywhere.

The virulent principle of this plant, says an eminent specialist on diseases of the skin, is a volatile acid which exists in all its parts, especially in the leaves. All persons are not affected by it; some handle it with impunity. Actual contact with the plant is not always necessary for the production of the poisonous effects on account of the volatility of its active principle, and there is good reason to believe that persons sensitive to the poison not infrequently suffer from passing by places where the vine grows abundantly.

The plant is supposed to be most actively virulent during the flowering season, in early summer, but cases occur with great frequency during autumn. Even in winter, twigs and stems are alive to mischief to those who handle them.

One writer tells of a patient who cannot drive through the woods where the poison sumach grows without subsequently suffering with the characteristic inflammation, and that merely passing to the leeward of a field where the farmers were burning brush has been sufficient to evoke the eruption. The poisonous influence of the plant is transmitted with the greatest facility on clothing and other articles in use.—*Western Medical Reporter*.

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Five Generations of Living Humanity.

IS there a heart so dead to the beautiful in nature that it will not thrill with pleasure when its possessor gazes upon the Wakefield family group, elsewhere published in this issue. How rarely is such a sight vouchsafed to us in the history of the human animal, yet how common is it to see five, and more than five, generations of brute animal life in existence at the same time.

Should we not blush with shame when we think of this fact.

Recently we sat next to a young woman in church; her grandmother, after giving birth to fourteen children, died at 64; her father and mother, leaving five children, were both dead at less than 30; she herself (our church neighbor) had one child that nearly cost her her life. What a sad spectacle of physical degeneracy, when compared with that which we now picture.

An aristocracy of health and longevity is what we sadly need in this country.

Physicians as Conveyers of Disease.

IT has always been a fond dream of ours that the time will come when each individual unit of humanity will regard health as the most valuable of all possessions; will guard it with the greatest care; when legislation will recognize in health

an entity, a reality, a possession, just as it now regards money, and will make provision for the punishment of him who robs his neighbor of his health, as it now provides punishment for him who robs another of his money. This is sure to come, and the sooner the better, but it cannot come until the public is educated up to a proper appreciation of its responsibility in this matter. The man who rents a house, a room, or a carriage, that he knows has been occupied by a case of contagious disease, to another, without previous disinfection, or, at least, without a warning to the coming occupant, is, morally, as guilty of the death that may ensue therefrom as he would be if he shot or stabbed his victim,—that is to say, he is morally guilty if he has been informed of the danger, and the time will come when legislation will make him legally guilty.

In this connection candor compels us to say our own profession needs a little stirring up. We are perfectly satisfied that very many cases of contagious diseases are carried from one house to another by physicians. A few years since an obstinate epidemic of small-pox persisted in a certain city, and all the well-directed efforts of an efficient public health service seemed powerless to check it. Finally, in the course of a consultation between the local and State health authorities, we asked whether the physicians of this city had made it a practice to disinfect themselves and their clothing after visiting their small-pox patients. We were answered in the negative, and we are sorry to say that our query did not seem to make much of an impression. It is a fact that, while physicians will impress upon the attendants of their contagious cases the necessity of isolation and disinfection, they do not seem, as a rule, to consider the disinfection of themselves a necessity. When we realize that the germ, or cause, of a contagious disease is an entity, an individuality, a little, visible (microscopically), tangible seed, so to speak, we must admit not only the possibility, but the extreme probability that the doctor who visits indiscriminately his contagious and his non-contagious cases can, will, and very frequently does, carry the seeds of disease from the former to the latter.

Having had this idea in mind for years, we were deeply interested in reading recently, in the daily press, that a gentleman out West has brought suit against a prominent physician for \$10,000 damages, alleging that the doctor carried scarlet-fever germs into his house, and gave the disease to his wife, who died

therefrom. In this particular case the doctor should not be blamed, because, as we have said, the practice of personal disinfection is not universal, or even general, among physicians; hence this doctor cannot be called culpably negligent; but, in principle, this action is founded upon good, sound, common sense and equity. Our patients summon us to cure, and they trust blindly to us; we have no more right to enter a house after having visited a case of contagious disease, without previous disinfection, than we have to carry gunpowder and a lighted match into this same home. We are trusted in matters about which our patients are ignorant, and he who goes from a contagious disease to another patient undisinfected does not measure up to the full dignity of the trust reposed in him. We will watch the outcome of this case and report it.

Typhoid Fever from Oysters.

IT was not our intention to have anything to say about the recent epidemic of typhoid fever at Wesleyan College, in Middletown, Conn., ascribed to the eating of contaminated oysters, because we felt that the true significance of this outbreak would be correctly appreciated; but it would seem, from our correspondence, that misapprehension exists in many quarters, and a few words of explanation would seem necessary. The history of this outburst is as follows:

“The first case developed on October 22, the student being the son of a physician in Vermont. The patient was taken home and died. This case was followed rapidly by others—one fatal—until they now number about thirty. They began to develop about ten days after the initiations of six societies at Wesleyan, a supper being given by each. As all the sufferers had attended these suppers, investigation was turned in that direction. The Middletown city water and also the water from a well on the campus were examined and both found to be innocuous. The milk used at the initiation suppers was next looked into and was found to be perfectly wholesome and obtained from farms where the conditions were healthful. It was next found that, while at all six of the suppers oysters were used, at three only were raw oysters supplied, and that all the victims had partaken of them. These oysters were bought from a Middletown dealer, who obtained them from an oyster-grower living on the east shore of the Quinepiac River, near New Haven. He, like the many other growers owning oyster establishments on the Quinepiac, is accustomed to take the oysters from the deep waters of the Sound and lay them down before opening for some twenty-four hours in the shallows of the river. This makes the oysters absorb the fresher water of the stream, swells and whitens them, the technical phrase among

the oyster men being 'giving the oysters a drink.' The next discovery was that the oyster-grower's wife had died of typhoid fever about the time of the outbreak at Wesleyan, and his daughter also has been ill of the disease. His house stands not far back from the river, and its short drain empties into the latter near the place where the oysters are bedded temporarily. In addition to the Wesleyan students there were visitors from Yale and Amherst, and two of these, one from each college, are also ill with typhoid. The same paper from which we have quoted reports that a gentleman in New Haven recently gave an entertainment at which raw oysters were served, and six of his guests are now suffering from typhoid. The bed of the Quinepiac River is extensively used for oysters by the growers of Fair Haven and East Haven, which for many years have been centres of the Connecticut oyster trade. Many sewers empty into it."

Now, the accounts of this epidemic have created in the minds of many of our correspondents an idea that the oyster itself has some causative influence in typhoid fever; in truth, it was not the eating of oysters, but the fact that they had been bedded in a stream polluted with typhoid-fever germs that gave rise to this epidemic. It would have been the same, most likely, had the water of this river been used, or fish therefrom eaten, or anything organic derived from this polluted source. It is true the oysters were the media of conveyance, but so also was the cart in which they were hauled. Let us blame not the innocent oyster, but rather the reprehensible indifference to the dissemination of hygienic knowledge, that would have warned this oysterman of the fatal danger of bedding oysters in a polluted stream, particularly when he knew that the drainage from a case of typhoid fever must flow into very close proximity to them. The oyster is all right; eat all you want of them; nothing is more nutritious than a raw oyster; but don't cook them (unless you are sure that there are some disease-germs present, to be killed by heat), for cooking makes them indigestible.

Filtration of Schuylkill Water.

ELSEWHERE in this issue we publish a communication from Mr. Frank J. Furth, in reply to our editorial on this subject. Mr. Furth puts the question in a light that would make it seem as though filtration might be tolerated as a temporary remedy; but the point to be feared is whether the acquisition of a temporary and partial remedy will not indefinitely postpone the great and only perfectly satisfactory solution of the water question,—namely, a new and uncontaminated source of supply.

The expense, we know, will be great, but that fact did not deter the birth of the monstrosity at Broad and Market Streets; nor would it deter the acquisition of a new water-supply if some real, good, live, active, energetic, hard-working "Boss" would only undertake the job. Whatever may be said of the moral aspect of "Bossism," it is an "*ism*" that does make material progress. We talk and argue and dispute and contradict each other, while a "Boss" Tweed, in New York, or Shepherd, in Washington, or Hausmann, in Paris, *works* and gives to his city something to be proud of it. When it comes to public improvements, we are not sure that individual "*Bossism*" is not much more desirable than collective inertia.

Restriction of Consumption.—Michigan's Plan is being quite Generally Followed.

SECRETARY BAKER, of the Michigan State Board of Health, has recently received a letter from Dr. H. B. Horlbeck, who, for many years has been the efficient Health Officer of Charleston, S. C., a prominent member of the American Public Health Association, and a prominent sanitarian in this country, in which the hope is expressed that Charleston may follow the "good example set by the State of Michigan in attacking consumption or tuberculosis." In accordance with Dr. Horlbeck's request, Secretary Baker sent him such pamphlets, leaflets, copies of laws under which the work is being done in Michigan, and diagrams showing the result of a similar work which has been so successful in Michigan in lessening the number of deaths from scarlet fever. The information given Dr. Horlbeck related to Michigan's plan for the legal control of tuberculosis, and, more especially, for the restriction of the disease through the systematic and continuous education of the people most endangered,—the relatives, friends, and associates of consumptives.

The Healthiest Town in England.

The healthiest town in England is Croydon, which has a mortality of only 11.2 per 1000 per annum. In Brighton, for the week ending February 21, there was a death-rate of 15.8, and in London 18.6. In the latter town there were twenty-two deaths from influenza for the week, an increase of three over the preceding week.



Clean Damp and Dirty Damp.

Some one made the pertinent remark about beds that people are afraid of *clean damp* but not of *dirty damp*. The meaning is that they insist upon having everything from the laundry thoroughly aired before it goes upon the bed, but that after it is in use on the bed, they fail to understand why the dampness and the foul exhalations should be dissipated every morning before the bed is made.—*Sanitary Inspector*.

Milk from Tuberculous Cows.

In a recently issued Agricultural Department report, on tuberculosis in cattle, by Theobald Smith, chief of the animal pathology department, it is stated that investigations undertaken by the department show that the milk of tuberculous animals is not so frequently infected as supposed. Milk of animals in the earliest stages of the disease, and with perfect udders, does not contain tubercle bacilli. Only those showing signs of labored breath and emaciation should be gravely suspected, and their milk excluded at once from sale.—*Medical Record*.

Too Slow.

Dr. Holbrook takes issue with the prevalent opinion that as a people the Americans are living too fast, and is inclined to think that the majority of us are living too slow. For instance, we are in no hurry to go to bed at night or to get up in the morning. We are in no haste to learn the best ways of living so as to make life deeper and richer. We are in no haste to give up unwholesome food and drinks. There is no hurry about changing unhealthful style of dress for one better adapted to our needs, nor is anybody in haste to build more sanitary houses or develop physical bodies as perfect as nature intended them to be. If we were in greater haste to do these things, we might work at a far more rapid rate than we do and be the better for it.—*Medical Brief*.

A Very Old Man.

A Frenchman, now living in Russia, is said to have attained the age of 126 years. He was born in Paris on April 17, 1768, and has a vivid recollection of the "Terror." He joined Napoleon's army in 1798. He fought in the battles of Austerlitz and Jena, in the campaigns of Egypt and Spain, and finally was one of the 400,000 men who followed Napoleon to Moscow.—*Sanitarian*.

Longevity among Physicians.

One of the most curious statistical records that has been compiled this century is that by Dr. Salzmann, of Essling, Würtemberg, on the average duration of life among physicians. He found, in going over the ancient records of the kingdom, that in the sixteenth century the average duration of life among that class was but 36.5 years, in the seventeenth century 45.8, in the eighteenth 49.8, and at the present time they reach the favorable average of 56.7. It appears from the foot-notes to the above that this very great increase in longevity is due to the disappearance of the "black pest," the introduction of vaccination, and the great diminution in the number of typhus epidemics, three classes of diseases which formerly decimated the medical practitioners.—*College and Clinical Record*.

The Nature of Immunity.

In a lecture delivered before the International Congress of Hygiene, Professor Buchner, of Munich, summarized his conclusions in regard to immunity and immunization. Natural and acquired immunity he considered differed in principle. The natural power of resistance is due to the bactericidal influence of the alexines, certain dissolved constituents of the organism, and to a congenital power of resistance in the tissues and cells of the body. The leucocytes play an important part in this natural protection, not through phagocytosis, but by means of dissolved substances they secrete. The immunity artificially acquired or the immunity acquired in later life is due to the presence of modified bacterial products,—the antitoxines. The action of the antitoxines is not directly upon bacterial products, but by modifying the organism these enable it to resist specific poisons. This is essentially the doctrine most prevalent.—*Physician and Surgeon*.

Porous Glass for Windows.

The latest hygienic craze in Paris is the use of porous glass for windows. This is declared to possess all the advantages of the ordinary window-framing, and, while light is as freely admitted as through the medium of common glass, the "porous" further admits air too, the minute holes with which this is intersected being too fine to permit of any draught, while they provide a healthy continuous ventilation through the apartment.—*The Hospital*.

The Corset in France.

A petition has been presented to the French Chamber of Deputies against wearing the corset as injurious to the health of the female part of the population. The Chamber solemnly received the petition, and passed it in committee. Meantime a Paris journalist has been gathering the opinions of notable women. A great many of them denounce the corset, declaring it to be unhealthy and ungraceful. They say it turns the figures into one commonplace mould, spoiling pretty ones and doing nothing to improve the ugly ones, yet most of the fair ones interviewed, who expressed themselves in this fashion, wore the objectionable garment.

To Increase the Birth-Rate of France.

Stringent laws have recently been enacted by the French government, which, despairing of obtaining any increase in the birth-rate of the land, is endeavoring to save the few children that are born. One of these regulations forbids, under a severe penalty, any one to give infants under one year any form of solid food, unless such be ordered by a written prescription, signed by a legally qualified medical man. Other regulations are equally restricting, and as the French have a knack of enforcing their enactments, down to the most trifling ones, as American visitors to Paris often find to their cost, it is probable that childish lives will be saved. One could wish, on seeing an east-side tenement mother feeding her few months' old baby with a peach or banana brought from the curb fruit-stall, after half a day's exposure to the August sun, that the municipality of New York would copy a few of these French regulations. It would vastly lessen the work of the dispensaries and visiting tenement physicians.—*Medical Record*.

Von Bülow's Brain.

Hans von Bülow, the eminent pianist and conductor, who died at Cairo in February last, had for years been a martyr to maddening headaches. In accordance with his often-expressed wish, after his death, Professor Kaufmann, of Cairo, who performed the post-mortem examination, extracted the brain, and sent it to a German physician for examination. It now appears that the surface origin of two nerves leading to the scalp was embedded in a scar, left by an attack of meningitis in early youth. Whether this scar can be held responsible for the great artist's many eccentricities must remain an open question.

Professor Koch on Cholera.

At the recent meeting of the German Public Health Society at Magdeburg, Dr. Koch said that it is now possible to prevent the spread of cholera in any country, and he was certain that Germany would never be visited again with an epidemic if only the measures now adopted were carried out early and energetically. It was a matter of indifference to him what precautionary measures were taken in other countries, for Germany was now able to protect herself and keep the cholera out of her own borders.—*Medical Record*.

The Hygienic Advantages of Railroad Accidents.

This appellation we might apply to the idea that Dr. Richard K. Newton advances in the *Medical Record*, an idea that we fully concur in,—viz., that the shock of a railroad accident, and even, we believe, the actual physical injury received therefrom, will, in some cases, redound to the benefit of the health of the person so injured. The longer we live the more do we become convinced that the nervous system is at the bottom of most disordered conditions of health, whether the disorder be of the nervous system itself or of some of the more purely mechanical portions of the human organism; and we can fully sympathize with Dr. Newton's explanatory statement, that "it would seem that the nervous elements that have been disarranged by one shock might be shaken back into place by another."

Needle- or Rain-Baths.

We are in sympathy with the prediction ventured by the *Reflector* that the bath-room of the future will be tubeless, and in its place will be a tiled room where perforated pipes, packed, coiled, or in lines at various angles, will spray the bather at his will, the water being carried off by novel drain arrangements. This is the most wholesome bath, and it is the quickest where cleansing is sought. This has been proved conclusively by its introduction into institutions, hospitals, prisons, and asylums. Its sanitary and hygienic advantages are palpable after slight consideration. The douche is a tonic in itself, and the doing away with the opportunity for prolonged immersion, which is the chief cause of the exhausting effect of a bath, is in itself a large benefit. No time is lost in beginning the bath, and no soiled water comes in contact with the clean water. The advocates of this bath unhesitatingly claim it to be the only rational and proper method the world has ever known.

Railway Travel of Consumptives.

Among other things which the settlement of the great strike will give railway managers opportunity to attend to, says the *Journal of the American Medical Association* editorially, is the provision of proper accommodations for the segregation of consumptive railway travellers from ordinary passengers in the obvious interest of the public health. This provision will doubtless be hastened by the publication of such observations as the following from a letter to the *Pacific Medical Journal*, by Dr. Douglass W. Montgomery, written on a "trip to the Eastern States." The writer says, "In our sleeper were three consumptives returning home to die, and that alone was depressing enough, but when, on getting up in the morning, one sees a considerable amount of dry, yellow sputum on one's *vis-à-vis* neighbor's bed linen, it is neither dainty nor reassuring. Morning cogitations, usually so pleasant, are apt to turn to the uncomfortable possibility of all the bedding in the car being subjected from time to time to the same infection, and being probably imperfectly washed or simply rinsed. Then it is impossible to clean the upholstering and carpeting without taking them out of the car, and an infected sleeper should be dangerous, as the continual vibration keeps the dust and bacteria

in the air. The space is also necessarily confined. Moreover, travellers are apt to catch cold from draughts and from sleeping close to the windows, thereby rendering the mucous membranes receptive to germ implantation."

They order these things better in Europe; on some of the continental lines special coaches are provided for consumptives, and these are constructed with particular reference to ready cleansing and disinfection at the end of every trip,—which, it should be noted, are much shorter than the "runs" in this country, and the need of precautions is, therefore and for so much, greater here than abroad.

Ingrowing Toe-Nail.

Dr. M. A. Veeder has made use of a method for the past ten years which answers well in the ordinary run of cases, and also in certain cases of onychia. It consists simply in cutting a piece of ordinary felt plaster, sold for use in cases of corns or bunions, so as to be the exact size and shape of the nail about which the ulceration is located. The bit of plaster thus shaped and fitted to the nail is to be firmly attached thereto, so as to press aside the overlapping granulations from off the nail. By holding it in this position a minute or two, until it dries and adheres firmly to the nail, it becomes strongly fastened and will stand considerable rough usage, but as an additional security a strip of isinglass plaster is wrapped three or four times around the toe, including the felt. If properly applied the relief is immediate, and the cure is complete as soon as the thinned and jagged edge of the nail underlying the granulation has grown out to its normal size.—*Medical News.*

Education and Cleanliness.

The Chicago school board has been discussing the question of cleanliness, and, as a result, another innovation, the bath-tub, will be introduced into the curriculum of certain schools in that city. In several districts many scholars possess erroneous ideas regarding the proper degree of cleanliness, and henceforth those presenting an unhygienic appearance will receive a scrubbing. The boys will be immersed by the janitor, and the girls will take their ducking under the supervision of women who are employed as assistant janitors. The board deemed it essential that a child

should know the value of soap and water, as well as the double rule of three or the theory of the tides. The plan to supply the schools with bath-tubs originated with Mrs. J. M. Flower, who recently retired from a three years' service as member of the board of education, and who is now a candidate for trustee of the State university. This procedure marks another step towards clinical teaching in the schools. Theoretical physiology has been taught children for years, but it has not kept them clean. Under the new *régime* pupils will be instructed in the practical application of this science by demonstrations in bathing, and proof of the superiority of this method of teaching the phenomena of the human body will be manifest on the surface.—*The Physician and Surgeon*.

Feeding in Childhood.

In the period of growth the processes of nutrition are necessarily more active than when the fabric is stationary; the demand is greater and returns at shorter intervals, and any failure in supply is more immediately and more severely felt. Hippocrates observed that old persons endure fasting most easily, next adults, young persons not so well, and infants worst of all. Young children and boys and girls are often insufficiently fed; they want more than their elders, and usually get less. From five or six in the evening until breakfast is too long for a child to fast. A growing, hungry child needs a plain but substantial supper, and often something light before bedtime. School-boys are frequently not sufficiently well fed, not from want of means, but want of knowledge. Children in the nursery, beyond the age of infancy, should have light food, such as milk or beef-tea, with toast, bread, or biscuit, just before going to bed. School-boys or the like, who dine in the middle of the day, ought to have a little meat by way of supper.—W. Howship Dickinson, M.D., *British Medical Journal*.

Anxiety as a Cause of Granular Kidney.

It is interesting, in relation to the ailment of the Czar, to recall a paper read by Professor Clifford Allbutt at the annual meeting of the British Medical Association, at Sheffield, in 1876. The subject he took up was "Mental Anxiety as a Cause of Granular Kidney," and by an analysis of his case-books he showed

what an abnormally large proportion of the patients showing symptoms of granular kidney had been subject to the depressing influence of prolonged anxiety. He says, "During the last two years I have made notes of thirty-five cases of granular kidney occurring in private practice, and I find a marked history of mental distress or care, or both, in twenty-four of them." This is a large proportion, even if we admit that the pushing inhabitants of West Yorkshire worry abnormally concerning this world's goods. Several illustrative cases are given, and one especially in which, as a consequence of an unfortunate investment, a man, in a good position, for three years "went to bed night by night ignorant whether he might not be gradually drained of his all." Dickinson is in some sense in accord with Allbutt on this question, although not so positive. Prolonged mental disturbance, anxiety, or grief as a cause of granular kidney is, he says, "perhaps problematical; the mode of its operation is not obvious, but must be surmised as through the nervous system. A lowering of nervous force is to be recognized at least as predisposing to every form of albuminuria. I have seen so many instances in which granular degeneration has been immediately sequent upon trouble that, in the absence of other causes, I am fain to conclude that mental conditions are sometimes concerned in its production."—*British Medical Journal*.

Health in the Home.

I want strongly to enforce that it is the women upon whom full sanitary light requires to fall. Health in the home is health everywhere; elsewhere it has no abiding place. I have been brought, indeed, by experience, to the conclusion that the whole future progress of the sanitary movement rests for permanent and exclusive support on the women of the country. When I enter a house where there is a contagious disease, I am, of course, primarily impressed by the type of the disease and the age, strength, and condition of the sick person. From the observations made on these points I form a judgment of the possible course and termination of the disease, and, at one time, I should have thought such observations sufficient. A glance at the appointments and arrangements and management of the house is now necessary to make perfect the judgment. By this glance is detected what aid the physician may expect in keeping the sick in a condition more favorable for escape from death; and by this is also detected what are the

chances that the affection will be confined to one sufferer or distributed to many. As a rule, to which there are the rarest exceptions, the character of the judgment hereupon is dependent on the character of the woman who rules over that domain. The women are conversant with every nook of the dwelling from basement to roof, and on their knowledge, wisdom, and skill the physician rests his hopes. How important, then, that they should learn, as a part of their earliest duties, the choicest sanitary code.—B. W. Richardson, M.D.

The Physical Strain Involved in High Speeds.

The exaction that modern railroad speed makes on the physical stamina of railroad men is demonstrated in the fact that seven engineers are required to take the Chicago flyer out and seven back, says the *Boston Transcript*. The running time between New York and Chicago is twenty-four hours, and the average speed is forty-eight miles an hour. Each engineer and engine runs three hours. Machine and man return with a slow train to their starting-point to relieve the strain on both. Then the engineer is given forty hours' rest before he goes on the flyer again. This rest is absolute, no work of any kind being required of the engineer. Though the average speed is forty-eight miles an hour, the locomotive must at some points be driven at sixty or more. The physical strain on the men in the cab at those bursts of speed is something terrible. The engineer has fifty things to look out for, and is being shaken and swayed all the time. The fireman is constantly feeding the insatiate furnace. On the run of the Empire State express three tons of coal are shovelled from the tender into the furnace between New York and Albany. It is not wonderful that the engineers of this train are given alternate days for rest and recuperation. Fast travel not only wears out rails and machines, but human creatures' lives.—*Scientific American*.

School Hygiene.

An excellent address has been issued by the State Board of Health of California on school hygiene for public school teachers. It considers the school site, water-supply, water-closets, urinals, school-room ventilation, school-furniture, cigarette-smoking, etc. The following is a short recapitulation :

“The school-grounds must be high and dry. The basement must be kept clean and thoroughly ventilated. The well should not be less than 200 feet from a privy, and cleaned out twice a year. The water-closets, and urinals, or privies, should be inspected daily by the principal or teacher. Have all outside doors open outwardly. Let no black-boards be placed between windows. Have the pupils face a wall with no windows. Have perfectly tight floors. Ventilate well, but do not let the room become uncomfortably cold nor permit pupils to sit in a draught. Do not let a pupil take a seat in wet clothes. Let young children have water as often as they want it. Go through all exercises promptly, quickly, and with energetic precision. Have a mirror and a vitrified iron washbowl in the school-room, but no soap nor towel. Allow no cigarette or other smoking, and give no opportunity for any kind of vice or nuisance about the school premises. Let pupils go to the water-closet, privy, or urinal as often as necessary. Let them go too often rather than not often enough. See that all pupils have been vaccinated. Report all cases of contagious disease at once to the health officer by mail. Do not permit them to return until they bring a certificate from a reputable physician that they are no longer dangerous to others. Send no pupil to the residence of others to inquire the cause of absence. Write, or send the truant officer.”—*Pacific Medical Journal*.

A New Role for Bacteria.

M. Tischutkin maintains that the so-called carnivorous plants are incapable of digesting albumen ; but that their sole characteristic property resides in their ability to absorb albumen which has been digested by the bacteria. These are the conclusions which he draws from a careful study of the subject :

“1. The disintegration of albuminous compounds by the secretions of carnivorous plants is due to the growth of micro-organism, principally bacteria.

“2. Micro-organisms possessing the power of dissolving albuminous compounds always vegetate in the secretions of completely-developed carnivorous plants.

“3. The disintegration of the albumen does not commence at the moment of the secretion of the fluid, but only after micro-organisms have developed in sufficient numbers in the secretion.

“4. The micro-organisms found on the leaves of carnivorous

plants come principally from the air, though they may be derived from other sources.

“5. The name ‘carnivorous’ plants is to be understood in the sense that the plants only assimilate the products which the lower organisms have set free.

“6. The rôle of the plant itself is only to furnish a medium in which certain organisms may live and develop.”

The Nose and its Hygienic Relation to the Body.

It is no unusual thing to give advice to our fellow-man. To prevent his doing what he is impelled to do by force of nature or of habit, without showing him a better or, rather, the true way of relief, is virtually improper. In this connection the following is suggested: Each human being who claims any moderate amount of cleanliness and care regarding his health will, during his morning ablutions, wash his face, head, mouth, teeth, and body, and may do so without ever dreaming that the human proboscis is one of the most uncleanly organs of the body (which fact our forefathers sought to overcome by the use of snuff, etc., but which proved of no avail), and its purification lies, last but not least, in washing the nostrils proper, and this should be done in the following way:

After the completion of the above ablutions and the thorough renovation of the basin used, fill it nearly full of pure cold water; immerse the whole face therein, and by trial learn how to gently snuff water as one would customarily breathe air; a few sniffs may be taken and the face withdrawn if the taking of breath has become necessary, and again immersing the face, repeat the action several times, but, mark you, no force must be used. The result will speak for itself in the residue left in the basin, thus proving the necessity for removing the surplus secretions of this organ and avoiding the dangerous necessity of carrying your catarrhal as well as tuberculoid matter in your pocket, not mentioning the sometime contagious results from the laundering of handkerchiefs. The mucous surfaces of the nose thus become accustomed to the influence of the daily temperature by using the water in its normal condition, and many years of practical experience by its disciples has fully demonstrated the efficiency of this system.

All persons subject to catarrh who practically have dry and clear nostrils nevertheless have mucal droppings into the throat,

and are often involuntarily compelled to swallow this retroverted mucus.

All this can easily be overcome by the permanent adoption of this system of cleanliness. The strong snuffing up and down of water in the nostrils is too forcible for that sensitive organ of smell, and no nasal douche should ever be used for the same reason. The above gentle flushing system is confidently urged as the most efficient and least harmful method of cleansing the nostrils.—*Herald of Health*.

Isolation of Consumptives in California.

Dr. Winslow Anderson, a member of the State Board of Health of California, in the course of a general discussion of the subject of consumption, very justly says that the disposal of consumptives, both living and dead, is a subject of considerable importance. There cannot be the slightest doubt that consumption is communicable from one person to another. It therefore cannot be denied that every consumptive becomes a danger to those around him,—a danger to public health. What shall be done with him? Shall we, as intelligent physicians, fully aware of the danger, prostrate ourselves before Allah, as do the good Mohammedans in times of cholera epidemics, and say, "Let thy will be done, there is no God but Allah;" or shall we stand calmly by with our hands folded and our faces to the sun, as do the people in India, imploring protection from Brahma and Vishnu, the creator and preserver, that Siva—the destroyer—does not annihilate us? Or shall we as men imbued with Western thought and civilization, and freed from the trammels of Oriental and Occidental superstitions, assert our rights as teachers of the healing art, and determine what had best be done with the unfortunates who become consumptives? I say, yes. We must protect the public health. In that event we are bound to isolate and care for consumptives, so that the disease does not spread. Naples reduced her mortality from consumption 90 per cent. by these means; England, 50 per cent., and Philadelphia, 8 per cent.

California is rapidly becoming the great sanitarium for these unfortunates. If we allow them to come to our shores to seek health, is it not proper that we should protect the healthy? Should we not protect our fair shores, with its sunny and balmy atmosphere, from becoming a cesspool of contagion and infection?

How can this be accomplished? Not by denying consumptives to come to our fair land to be cured, no; but by proper isolation, by properly regulated sanatoria, giving them all the advantages of climate, hygienic surroundings, rationally constructed buildings, and scientific medication.

Hygiene of the Eyes.

Fox (Philadelphia) concludes an interesting paper on this subject as follows:

- (1) Avoid sudden changes from dark to brilliant light.
 - (2) Avoid the use of stimulants and drugs which affect the nervous system.
 - (3) Avoid reading when lying down, or when mentally or physically exhausted.
 - (4) When the eyes feel tired, rest them by looking at objects at a long distance.
 - (5) Pay special attention to the hygiene of the body, for that which tends to promote the general health acts beneficially upon the eyes.
 - (6) Up to 40 years of age, bathe the eyes twice daily with cold water.
 - (7) After 50, bathe the eyes morning and evening with water so hot that you wonder how you stand it; follow this with cold water, that will make them glow with warmth.
 - (8) Old persons should avoid reading much by artificial light, be guarded as to diet, and avoid sitting up late at night.
 - (9) Do not depend on your own judgment in selecting spectacles.
 - (10) Do not give up in despair when you are informed that a cataract is developing; remember, that in these days of advancing surgery it can be removed with little danger to the vision.—*Dietetic and Hygienic Gazette*.
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Spices as a Cause of Hæmorrhoids.

A writer in *The Doctor of Hygiene* says, "The Dutch custom-houses of Java shed an important light upon most of the unknown and unstudied natural laws involved in the cause and cure of hæmorrhoids. In order to perpetuate the high commercial repute of the spices and other products of that island, the government usurps an absolute control over them, at least so far as regards

their purchase and sale. It monopolizes the purchase of the whole product, and prohibits the natives from selling anything whatever to strangers. Prior to exporting everything is rigorously inspected. The inspection of spices requires that they should be tasted. Knowing that their juices are poisonous, the inspectors never swallow the minutest particle of them, but immediately eject them from the mouth. Nevertheless, after a certain length of official service, these spice inspectors become the victims of the most aggravated cases of piles which have ever been known to the medical profession. Although no fragment of spice is swallowed, the current of saliva forever passing from the mouth to the stomach carries with it enough of the irritating juices of the spice to fearfully disturb and derange the whole alimentary canal. A prolapsus of the rectum ultimately ensues, extending sometimes four or five inches upon exposed surfaces, highly inflamed, and intensely sensitive to the touch.

The simple and negative system of cure they adopt is to withdraw from duty and to observe a strict abstinence from the tasting of spice. Without other remedy the patient after some months is cured and returns to duty, but only to relapse from the same cause after a time into the same malady. He thus oscillates between health and disease during his entire official existence, which we cannot suppose is distinguished for its longevity.

The Horrid Cellar.

Dr. E. C. Brown thus writes in *The Healthy Home*: "Now is the cellar-door closed, the double windows put on, and the furnace fire started. The heated air loaded with all the miasm of decaying fruit, vegetables, and boards, rises and fills the house. Outside doors and windows are closed. All the air admitted comes through the cellar. Even if the cellar is kept clean and wholesome, it is unlikely that the air from the earth is wholly free from miasm. In malarial regions it probably carries concealed the most deadly poison.

"What wonder people are sick. Let in the furnace air from outside!

"As a breeder of diseases there are few things that excel the average cellar. It underlies the whole house, with nothing to prevent its exhalations rising into the upper rooms except a thin board floor. In this cellar all manner of things for family use are

kept the season round. Meat, vegetables, milk, butter, bread, pastry, preserves, pickles, and fruit are here stored in their various receptacles. There is very seldom anything to separate the fruit and vegetables from the other parts of the cellar, and there is usually more or less decaying vegetable matter to load the air with poisonous germs. At various seasons of the year the cellar walls collect dampness, or small pools of water lie under their loose board floors, sending up malarious odors into the rooms above.

"The remedy is open cellar-doors and windows and free air circulation. It will make the floors colder, to be sure, but except in the worst and coldest weather it is the proper course to pursue if good health is valued."

Typhoid Fever in Washington.

In a recent report on typhoid fever in the District of Columbia some valuable conclusions of general interest are recorded. It is shown that in Washington there is a coincidence between a soil polluted with the leakage of the excreta from typhoid fever patients, the drinking of infected well-water, and an extensive distribution of typhoid fever; that where these two first conditions exist to the greatest degree typhoid fever is most prevalent. It remains to be seen whether the purification of the soil and the abolition of the water-supply from pumps would lessen the disease.

The belief that typhoid fever spreads by "soil contamination" would be much strengthened if other cities, with the same conditions, have diminished the percentage of the disease by draining the soil and abandoning the use of well water.

(1) Typhoid fever increases in proportion to the saturation of the soil with decomposing organic matter, especially human excreta, and to the drinking of infected well water.

(2) Typhoid fever decreases in proportion as a city is well sewered, and in proportion to the abandonment of the drinking of well water and of all contaminated water.

The greatest diminution in typhoid fever has taken place in England and Germany, where expert engineers and liberal municipal governments have combined in the work of sewerage the principal cities. In the cities of Spain, Italy, Russia, and Mexico, where the sewerage systems are less complete, the diminution has not taken place.

The history of Munich offers the strongest evidence on this

point. From 1854 to 1859, when no means existed to prevent the fouling of the soil, the mortality was 24 to 10,000 inhabitants. From 1860 to 1865, the sides and bottoms of the pits of the privies were cemented, and the mortality fell to 16.80. From 1866 to 1873, with partial sewerage, it was 13.30; from 1874 to 1880, with improved sewerage, it was 9.26; and from 1881 to 1884, with still greater improvements, it fell to 1.75 to 10,000 inhabitants.

The experience of Berlin is very instructive to Washington, as showing the difference in mortality in houses with sewer connections and in houses without them, where privies were used.

In houses with sewer connections there were 15.5 cases and 4.5 deaths to 10,000 population. In houses without sewer connections there were 56 cases and 17.9 deaths. In sewered houses there was 1 case to every 49.3 houses, and 1 death to 137.5 houses. In non-sewered houses there was 1 case to every 9.3 houses, and 1 death to 43 houses.

In Dantzig, with a wretched system of privies, there were 10 deaths to 10,000 inhabitants. The introduction of an abundant water-supply in 1869 produced no effect on the death-rate. The city was sewered in 1872. In the following twelve years the average mortality was 2.4, and in the last five years was only 1.5.

In Breslau, in 1866, without sewers, the mortality was 15.2; in 1876, with sewers, it dropped to 5.5 to 10,000 inhabitants.

In the cities of England, before any extensive sewerage systems were introduced, from 1850 to 1871, the mortality was 9; from 1876 to 1884 it was 3.6, the change following upon a general introduction of sewer drainage.

Nasty and Dangerous.

A couple of years ago we called attention to the danger and nastiness of putting money coin in the mouth. A few days ago we witnessed another exhibition of this filthy habit. We were in the street car going to the capitol. At the Savery House a colored man got in, going east also. He was no sooner seated than he pulled from his pocket a nickel and placed it between his teeth, and kept it there until the car nearly reached the bridge. As he held it in his mouth, the saliva spread over it, and his lips would occasionally protrude and hide it from view, then recede and the nickel could be readily seen. This "hide-and-seek" arrangement kept up until the conductor reached him, when, without wiping or

cleaning it in any way, it was transferred to his hand and into his pocket. It is possible the next person getting into the car may have been a lady, and she became the possessor of the nickel. It may have gone to her mouth also,—for we have often seen ladies put coin into their mouth on the street-car.

Now the first party may not have had any disease about his mouth, may not even have been chewing tobacco, and no harm come to the fair mouth to which it was next transferred. Still, there is something repulsive in the thought and more in the practice. But, oh, if the first party had had some loathsome, infectious disease, how serious the result might have been! No mouth, especially a lady's pretty mouth, was ever intended as a substitute for a porte-monnaie, and should not be put to such vile purposes.
—*Iowa Mo. Bulletin.*

How to Ward Off an Attack of Pneumonia.

Lack of personal hygiene, writes Dr. Cyrus Edson in the *New York World*, is the chief predisposing cause of the disease. Irregular hours, insufficient nourishment, dyspepsia, excessive fatigue, or some disease which has lowered the general tone of the system, all weaken the power of resisting the pneumonic germ. When the system is run down, a sudden exposure to cold may prove fatal, while in a normal condition of body it would be thrown off.

An instance which recently came under my observation will serve to illustrate the importance of regularity in meals as a safeguard against disease. Two young ladies of my acquaintance were travelling in a railway car, next to a man just recovered from small-pox, as was afterwards found out. One of them had risen early and had breakfasted; the other had risen late and had not. The one who had not eaten caught the disease, and the other escaped. The ladies were twins and almost exactly similar in physique and temperament, and, in my opinion, the temporary weakening of the system, caused by the omission of the morning meal, accounted for the disease being able to obtain a foothold.

There are three periods during which the susceptibility to pneumonia is greatest. They are early childhood,—that is, up to 7 years of age; between the ages of 20 and 40, and after 60. The power of resistance against pneumonia grows much feebler after 60 years of age, and nine-tenths of the cases prove fatal.

In New York they have a good deal of northeast wind during November and December, and the cold, damp weather it generally brings is very favorable to the contraction of "colds" and the subsequent development of pneumonia. The gripe left its victims very predisposed to pneumonia, and it still exists, to some extent, in a modified form. This is the disease with which pneumonia most readily combines, but it is found in combination with diphtheria, typhoid fever, measles, scarlet fever, and many others.

When a severe or sudden chill has been contracted, the main thing is to act quickly, and many a serious illness can be averted and valuable life saved by a little intelligence coupled with promptitude. If possible, send for a doctor immediately, and meanwhile take ten grains of quinine and five drops of spirits of camphor in a little water or on a lump of sugar. These doses are for an adult. Then soak the feet in hot water and jump into bed. Simple as these remedies are, they have nipped in the bud many prospective cases of pneumonia. While soaking the feet the body should be warmly wrapped in a blanket, which should be kept on until some time after the person has entered the bed, in order that free perspiration be continued and not checked.

A good thing to prevent "colds" is to wear wool next the skin. When this is not possible, on account of the irritation sometimes caused, a good mixture of wool and silk will generally be found satisfactory. I would not recommend cotton in any form for underwear, as it is frequently the cause of a dangerous cold by becoming wet and keeping the temperature of the skin below the normal. Care should be taken that the feet do not get wet, or, if so, that proper measures are taken to dry them and a change of hose made.

A Varied Diet.

An inquest was held in London, not long ago, on the body of a man who had died suddenly. The man used to make his living by going about to the different "pubs" in the evening, and eating anything that was offered him, for a small monetary consideration. He died after an operation for intestinal obstruction, and at the autopsy the following articles were found lodged in various portions of the digestive tube: A bullet, twenty or thirty pieces of cork, twenty pieces of tinfoil, a piece of string eighteen inches long, with corks attached, and a piece of leather nine inches long, with a hook at each end.

Germ in Agriculture.

M. Jean Danysz recently reported to the French Academy an ingenious method of ridding the country of small rodents which had become so numerous and destructive that it was impossible to produce any crop. Every acre of land furnished a home for thousands of these pests. The method adopted was to dissolve some gelatin cultures of pathogenic bacteria capable of producing an infectious disease in mice, then soaking a great number of small cubes of bread in this solution, and placing the bread near the holes occupied by the rodents, every day for three days in succession. Within two weeks after this method was adopted, scarcely a live mouse was to be found in the district treated. When the burrows of the rodents were opened, their galleries were found to be filled with dead mice.—*Mollum Medicine*.

Cheese as an Article of Food.

A writer in *Good Health*, while anticipating no sympathy with his views on the part of the cheese-makers, does not hesitate to express his most decided opinion that cheese as an article of food is wholly unfit for human consumption. Here is a little experiment which, he says, ought to be sufficient to convince anybody of the questionable character of cheese:

Take a boiled potato, cut it in two, taking care to use a knife which has been previously well boiled. Avoid exposing the cut surface of the potato to contamination with dust from the air, boiling the potato with the cut surface downward. Place the potato on a deep plate with the cut surface up, and cover quickly with a bell glass,—a glass butter-dish will do. Now cut off a bit of the cheese and carefully and quickly place it in the centre of the cut surface of the potato. Replace the glass cover, and pour into the plate a sufficient amount of boiled water to cover the edges. In a few days a luxuriant growth of mould will appear upon the cheese, showing that it contains a great quantity of microbes, and on moving the bell glass, a most repulsive odor will be observed,—a most pungent advertisement of the fact that cheese is filled with the agents of putrefaction and decay.

The writer is very fond of cheese, having acquired an abnormal liking for this unwholesome article when a boy, but nevertheless he has, from principle, abstained from its use for many years.

To Remove a Fish-Bone from the Throat.

Give about four to six ounces of milk to drink. In forty minutes give an emetic dose of *sulphate of zinc*. The milk goes down in a fluid state, and easily passes the obstruction; by a short stay in the stomach it becomes coagulated into a more or less solid mass, and on coming up forces the bone before it.

One Cause of Sore Throat.

If any part of the body is heated more than the rest by overdressing it, or from any other cause, an undue flow of blood sets in towards that part, often resulting in chronic inflammation. I once knew of a fatal case of kidney-disease developed by working at a desk with the back near a heated stove. Similar effects are produced by having one part of the body more warmly clothed than the rest. Many a sore throat arises from the tippet worn by children, harm resulting both from over-heating the throat when on, and from the suddenly cooling when it is taken off.

Altitudes and Female Health.

It is noticeable that the altitudes of Arizona, Wyoming, and other high regions are not favorable to a rounded development. Our high altitudes will hardly produce the rounded, plump figures so common in any of the Pacific islands, neither can a woman there retain her nervous system in that quiet and phlegmatic mood, so peculiar to the women of Holland, any more than she could keep her hair from standing out if on an insulating stool. A few years of mountain life,—in the extremely dry and windy altitudes,—and a few child-bearings, and a woman is a nervous and physical wreck. No thorough duplicate Benjamin Franklin can ever come from those desiccating altitudes, as he was one of a family of seventeen children.—*Pacific Medical Journal*.

Vaccination and Revaccination.

In the *Journal* of the American Medical Association, Dr. Ezra M. Hunt offers the following :

(1) What legal or professional method should be adopted to secure a more reliable supply of bovine lymph?

(2) How far is the older method of arm-to-arm vaccination still to be commended for adoption?

(3) What mode of insertion of vaccine lymph is to be advised?

(4) What directions should health boards and physicians give as to revaccination?

(5) What measures are practicable in order to secure a more general primary and secondary vaccination of the population?

(6) What after-examination should be made, and what should be the form of vaccination certificate? Should it state number of points at which the insertion of lymph produced a distinct depression of cicatrix?

(7) What quarantine or other restrictions should be placed on those who have been exposed to small-pox?

We think a committee should be appointed to furnish us facts and evidence touching each of these items, and then to outline a plan for the better securement of the results sought.

At present we name, not as conclusions but as suggestions, a few tentative answers as indicating lines of direction for inquiry:

(a) There should be a national vaccine and distributing establishment for bovine vaccine at Washington.

(b) Arm-to-arm vaccination should not be wholly abandoned. In our large cities, at least, physicians should arrange to have at hand certified humanized lymph, of which the sources are local and fully known.

(c) Vaccination direct from a charged ivory point used for scratching, or from a needle, used but for one case, should be relied on.

(d) Revaccination should be advised for all who have not been vaccinated within ten years, and oftener where there has been special exposure or there is any doubt as to marks or time of first vaccination.

(e) Children should not be admitted to public schools until vaccinated. Provision should be made to encourage general vaccination of infants and youth.

(f) A vaccination card or certificate should be given, stating time and place of vaccination or of revaccination, whether there was subsequent examination, and at how many points the lymph had taken.

(g) While time of quarantine must vary somewhat according to circumstances, persons who have been fully exposed, if not quarantined at once, should be under quarantine or watch from the ninth to the fifteenth day after exposure.

How to get Warm.

It may not be generally known that when exposed to severe cold, a feeling of warmth is readily created by repeatedly filling the lungs to their utmost extent in the following manner: Throw the shoulders well back and hold the head well up; inflate the lungs slowly, the air entering entirely through the nose. When the lungs are completely filled, hold the breath for ten seconds or longer, and then expel it quickly through the mouth. After repeating the exercise while one is chilly, a feeling of warmth will be felt over the entire body, even in the feet and hands.

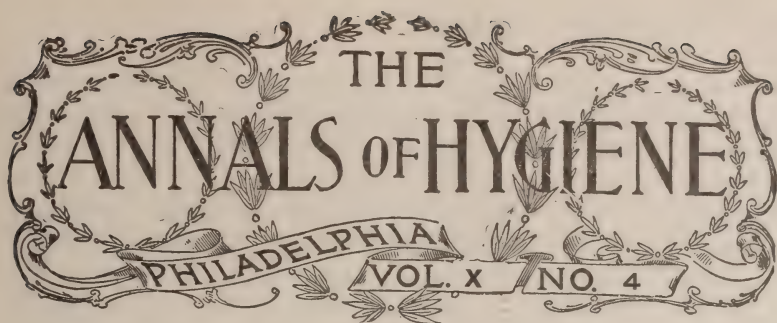


Buffalo Lithia Water in Bright's Disease of the Kidneys, Uric Acid Diathesis, etc.

Extract from Report on Therapeutics and Practice of Medicine, by E. C. Laird, M.D., Haw River, N. C., read before the Medical Society of the State of North Carolina, May, 1894:

"During the last season (as resident physician at the Springs) your reporter used the Buffalo Lithia Waters Nos. 1 and 2 extensively in almost every form and stage of acute and chronic Bright's disease of the kidneys and diabetes with most gratifying results. This action of these waters cannot be attributed to the effect of the large quantity of pure water passed through the system, as suggested by some writers, for in many instances the beneficial effects produced by one spring would be greatly enhanced by change to the other, and *vice versa*, showing some special curative action of each water in the individual case.

"This I attribute to two well-established effects of these waters: first, their powerful solvent and eliminating action on uric acid, which is considered by Tyson and others the principal excitant of Bright's disease; and secondly, to their nerve-tonic properties, thus embracing the wide range of adaptability to the cause of trouble, whether commencing with 'mind strain' from overwork, worry, or sorrow, as suggested by Drs. Thorn, Howard, and Flint, in *Virginia Medical Monthly*, May, 1894, or to one or more of the diatheses, either gouty, rheumatic, phosphatic, oxalic, lithæmic, or diabetic."—From the *Transactions of the Medical Society of North Carolina*.



COMMUNICATIONS.

The Prevention of Blindness.¹

BY BENJAMIN LEE, A.M., M.D., PH.D.,
Secretary of the State Board of Health of Pennsylvania.

NOT absolute blindness alone—not that blackness of darkness which enshrouds the being in eternal gloom and permits no faintest ray of cheering light to penetrate to the responsive centre in the brain only—entitles us to class the unfortunate possessor of such infirmity among the “defectives.” We are now considering the individual in reference to his value to his community and to the State. And it will readily be admitted that there are many kinds and degrees of imperfect or perverted vision, which, while they do not make the sufferer therefrom an actual burden upon the State or upon his kinsfolk, do seriously impair his usefulness, and make him a less productive member of the social hive than he would be with perfect lenses, normal accommodation, and humors of unimpaired transparency. Not simply the fact that he will perform with greater difficulty all operations requiring keen-sightedness, but the additional fact of the long train of nervous disorders which are induced by the exhausting efforts of the imperfect eye to meet the requirements of even the every-day duties of life, to say nothing of those of skilled workmanship, must be taken into account in measuring the disability thus caused. The day has gone by when the myope could boast of

¹ Read before the American Academy of Medicine at its Nineteenth Annual Meeting, at Jefferson, N. H., August 28, 1894.

the strength of his eyes. The dictum is now well established that "the near-sighted eye is an imperfect eye," and almost invariably, often at some critical period, when its owner can least afford to dispense with its services, it sooner or later develops its unreliability. I do not forget the wonderful advances made in ophthalmology in the discovery of errors of refraction and accommodation and of the mechanico-physical means for their correction. In fact, as I look back to the condition of that science when I began my medical studies, and its then helplessness in view of such disorders, and reflect how many sufferers are now restored to comfort and usefulness who would at that time have been stranded on the shores of a useless and often agonizing invalidism, I am filled at once with regret and with gratitude,—with regret that such an incalculable amount of relievable suffering went so long unrelieved, with gratitude that such amazing relief can now be afforded and by means so apparently simple. This seems to me, indeed, one of the most brilliant achievements of modern medical science. But even in this work of relief energies are expended and inventive genius exhausted in fields which are simply reparative and not productive. So that, even from this optimistic stand-point, there is still a loss to the State.

It would be ludicrous were it not mournful to note how ready we are, in our organized capacity, to provide relief for defectives and how slow to adopt measures to prevent their existence. Our law-givers disclose a mental myopia of a high grade in their observation of social conditions. The State will not do its full duty until the health officer and the sanitary authorities take an active supervision of the individual from the first moment of his existence until the time when, having lived out his hundred years, in the full possession of all his faculties, the use of which he has enjoyed to the full, while at the same time he has added to the wealth of the country and the happiness of his fellows, his body without spot or flaw or blemish, simply yielding to the inexorable touch of time, shall relinquish its gently-relaxing grasp upon his happy spirit and set it free for higher flights.

Beginning, then, with the new-born child, is there any cause of blindness which could be removed by the interposition of the law.

In the State of Pennsylvania we are confronted by the startling fact that, while the increase of population during the decade ending with the year 1880 was 21.6 per cent., the apparent

increase in blindness was 119.18 per cent., showing that this disability had increased more than five times more rapidly than the population. Allowing its full value to the probable greater fulness and accuracy of reporting during the later decade, there is still in this result food for the most serious reflection. The inquiry naturally suggests whether a possible cause can be assigned for this lamentable disproportion. One factor is certainly deserving of consideration; and that is the fact that a large proportion of the increase of population was due to immigration. Owing to the extensive mining, iron-working, and railroading interests of the State, the great mass of these immigrants were either Slavs or Italians. Now, as is well known, among these peoples a physician is rarely called upon to preside over the act of parturition. The entire care of the new-born child is left to the midwife, nurse, or neighbor. Couple this with the now well-recognized fact that the most important factor in the production of blindness is *ophthalmia neonatorum*, and may we not here have a partial clue to the distressingly rapid increase of this class of defectives? With reference to this last statement the evidence is overwhelming.

Fuchs found that among 3204 cases of blindness collected from asylums in different parts of Europe, 23.5 per cent. were due to *ophthalmia neonatorum*. In the New York Institution for the Blind, at Batavia, 23.4 per cent. of the inmates are there as the result of the same disease.

Horner has shown that among 100 blind asylums in different countries the variation was from 20 to 79 per cent.,—average, 33 per cent.

Haussmann gives the number in the asylum at Copenhagen made blind by this disease 8 per cent., in Berlin 20 per cent., in Vienna 30 per cent., in Paris 45 per cent.

According to the report of the Royal Commission on the Blind, of the English government, published in 1889, 30 per cent. of the inmates of the institutions, and 700 persons in the United Kingdom, have lost their sight from this cause. Professor Magnus, of Breslau, finds that no less than 72 per cent. of all who become blind during the first year of life are rendered so by purulent ophthalmia; and even of those who become blind before the twentieth year of life, it constitutes as much as 23.50 per cent. Looking at the subject in another way he shows that of 10,000 children under 5 years of age, 4.28 are blinded by purulent ophthalmia. In the blind asylums of Switzerland the proportion who

have lost their sight from this disease is 26 per cent. ; in the asylums of Austria, Hungary, and Italy, about 20 per cent. ; while in Spain and Belgium it falls to about 11 or 12 per cent. An investigation into the causes of the blindness of 167 inmates of the Pennsylvania Institute for the Blind, made by Dr. George C. Harlan, of Philadelphia, developed the fact that fifty-five owed their affliction to purulent ophthalmia, and that more than half of these cases occurred in infancy. But nothing is better established than that ophthalmia of the new-born is an infectious and therefore a preventable disease. Whenever it is demonstrated that a disease is infectious, contagious, communicable from person to person, either by direct contact or through the medium of infected articles, it becomes the duty of the physician and the sanitarian to discover, if possible, the source and character of this infectious matter, and to devise means for preventing its transmission.

Ophthalmia of the new-born is an infectious disease, and can occur only after the infectious matter has come into active and somewhat prolonged contact with the conjunctiva. The noxious matter is in every instance derived from an inflamed vagina (or urethra) or from another eye. In the great majority of cases infection takes place from the vagina, and it is to be remembered that the disease is not caused by the secretion of a specific (gonorrhœal) catarrh only, but that it may be produced by the secretion of simple leucorrhœa, or, at least, by what is recognized as such clinically.

Formerly this disease was attributed to a variety of causes, such as injuries received by the eyes during birth, icterus, chilling of the body, too intense light, and so on ; but these views are, of course, no longer entertained.

It is hardly too much to say that no one should become blind from this disease ; not only because it is quite amenable to treatment, if this be instituted from the beginning, but because the disease itself can be prevented in most instances if those who have the care of mother and child understand the nature of the affection.

From the facts and figures above given it will be seen that this is simply another way of saying that one-third of those who are now blind might have been saved from this calamity.

Other fellows, who are to address the academy on closely-allied subjects to my own, will be more capable than I to speak

at length on the diagnosis and history of this disease, and the means to be adopted for its prevention and speedy cure before vision has suffered permanent impairment. Suffice it to say that the latter should include attention to the nature of vaginal discharges during the later months of pregnancy; the employment of disinfectant vaginal injections during labor, *if necessary*; careful watching of the eyes of the infant for the first few days of life; and prompt abortive treatment of the first stage of the affection, should it unfortunately occur.

The Crédé method, which consists in carefully washing out the eyes with pure warm water and then instilling two or three drops of a 2-per-cent. solution of nitrate of silver, is usually sufficient to entirely abort the attack. Perfect recovery with an unimpaired cornea should reward the careful use of this treatment.

Dr. Lucien Howe, of Buffalo, has collected two lists of cases, the first showing the results obtained and published by different obstetricians who used no treatment for the eyes of 8798 children born under their care. Among these 8.66 per cent. had ophthalmia in a greater or less degree.

The second list, of 8574, shows the results of the Crédé treatment. In these cases there were only 0.65 per cent. In the Lying-in Hospital of Leipsic, where Crédé instituted his method, the percentage fell from 7.5 to 0.5 per cent. The advantages of Crédé's method have been recognized by its official recommendation in Austria, Germany, Switzerland, and France.

All this presupposes the attendance of a physician. While the State cannot compel every pregnant and parturient woman to have a medical attendant, it can insist that, whenever the acting accoucheuse shall notice the slightest indication of inflammation of the eye or the lids, she shall at once notify a legally qualified practitioner. The sanitary authorities should appoint physicians qualified to treat such cases, and should furnish such attendance free of expense in case of evident poverty. This is certainly as legitimate an expense on the public purse as free vaccination.

In European countries this is made obligatory. The State of New York has had a law in operation for more than three years requiring midwives and nurses to report every case of inflamed or reddened eyes occurring within two weeks after birth to some legally qualified practitioner within six hours after discovery, under penalty of a fine or imprisonment or both.

Deeply impressed with the importance of this subject and

feeling the responsibility which rests upon it to use the authority conferred upon it for the diminution of this serious disability, the State Board of Health of Pennsylvania has formally adopted the following regulation :

REGULATION V.—*For the Prevention of Blindness.*—Whenever, in any city, borough, village, or place in this State having no health authority of its own, any nurse, midwife, or other person, not a legally qualified practitioner of medicine, shall notice inflammation of the eyes or redness of the lids in a new-born child under his or her care, it shall be the duty of such person to report the same to some legally qualified practitioner of medicine within twelve hours of the time the disease is first noticed.

And, furthermore, that board urgently recommends the passage of a similar ordinance by the councils of all cities and boroughs, having health authorities of their own, and the adoption of a similar regulation by such health authorities.

Further, the utmost care should be insisted on in all public educational, correctional, and charitable institutions, particularly those occupied by children, to prevent the spread of contagious ophthalmia among the inmates. The common use of wash-basins and towels should be absolutely done away with, and any individuals so affected should occupy a separate dormitory, and not be allowed to mingle with the other children.

The State, however, has only done half its duty when it has relieved society of its burden of one-third of the cases of actual blindness heretofore existent. As already said, perversions and defects of vision as certainly, though not to as great a degree, interfere with the complete efficiency of the individual as absolute destruction of sight. Hence, the sanitary authorities should follow up the growing child from the cradle through adolescence to maturity. Although the eye of the child who has escaped ophthalmia in infancy is almost always good before attendance on school is begun, we find that a larger and larger percentage of pupils have imperfect eyes (as we advance from the kindergarten to the high school), until it is said, that among educated Germans no less than 67 per cent. have imperfect or defective eyesight. It is certain that these imperfections, in great measure, develop during the years of school life. If this is so, how are these imperfections caused ?

(1) By using the eyes too constantly at a short distance, as in reading and writing. Indian boys in the woods never become

near-sighted, but thousands of our school-children do every year. At birth the eyes are adapted to be used at all distances, but by using them exclusively at short distances they soon become of value only for seeing objects close at hand.

(2) By using the eyes too constantly and too long at a time. The eye is a very delicate organ, its parts become weary like the rest of the body. If overworked serious results follow. The eyes should never be used when they ache, pain, or smart, or when vision is weak or blurred.

(3) By using them when weak from sickness. After the diseases of childhood, as measles, scarlet fever, whooping-cough, etc., the eyes are often left weak, and may be many months in recovering their full strength. If at such times they are much used in reading or studying they are very liable to receive permanent injury. To this cause may be laid a large proportion of the defective eyes in our schools.

(4) By using the eyes in insufficient light. Very many of our school-rooms are poorly lighted. Children cannot see in them on dark days. Rooms are made still darker by the use of curtains and blinds, which are often partly closed or drawn and are placed at the top instead of at the bottom of windows. Windows are very often too small. They are often filled with flowers. If children study in the evening it is too often with a poor light.

(5) The print of school-books is too often fine and indistinct.

(6) Especially is this the case with regard to maps, which are in the highest degree confusing and distressing to the vision.

(7) Polished black-boards are both distressing and trying to the eye, the writing on them not being visible except from certain points of view.

(8) The chalk-dust caused by the use of the black-board and of a dry cloth or eraser is often very irritating to the eye.

In what way can the State prevent these deplorable results and preserve the normal vision of its people?

First. By taking pains that school-directors shall be persons of intelligence and education, and that positions on school-boards shall not be the rewards of political tricksters and ward workers.

Secondly. By issuing instructions to school-directors, as to the construction and maintenance of school-edifices, especially with regard to the proper introduction of light.

Thirdly. By making positions on school-boards open to women, who, as a rule, are more keenly alive than men to the necessity for guarding the health of children in every respect.

Fourthly. By compelling all applicants for positions as teachers to pass an examination on the hygiene of the school-room and especially on the hygiene of the eye.

Fifthly. By printing and distributing, not only among these functionaries, but also among parents and the public generally, brief circulars of information and instruction on these subjects.

Sixthly. By obtaining the introduction into public prints and the daily press of articles of the same nature.

Seventhly. By diminishing the hours of study, especially in the primary grades, and diminishing the amount of reading and writing now required during study hours, by encouraging the use of object teaching and illustrated lectures.

Eighthly. By stamping out all eruptive contagious diseases, which are known to have inflammation and ulceration of the eyes or asthenopia as their sequelæ.

Enough has, I trust, been said to demonstrate that the State has very definite and positive duties, not only for the prevention of the increase of this large class of defectives, but for the absolute abolition of one of its divisions, and the notable diminution of all.

1532 PINE STREET.

Habits of Posture a Cause of Deformity and Displacement of the Uterus.¹

BY ELIZA M. MOSHER, M.D.,
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THE influence of habits of posture upon the shape of the chest and the healthful development of the lungs has long been understood. Their influence in the production of spinal curvatures is well known. It has long been a common practice to elevate an inflamed part, and otherwise limit or utilize the force of gravitation in the treatment of medical and surgical cases.

Before the time of Marion Sims, the gynecologist and obstetrician had learned the usefulness of certain postures in the treatment of pelvic conditions. In the light of all this knowledge it seems strange that so little should be known to-day in ref-

¹ Read before the Gynecological Section of the Pan-American Congress, Washington, D. C., September 8, 1893. Reprinted from the New York Journal of Gynecology and Obstetrics for November, 1893.

erence to the influence of habits of posture in the *production* and *maintenance* of deformities and displacements of the uterus, an organ so movable, and in itself so helpless to resist the forces of gravitation and pressure from surrounding structures.

The human body, viewed from the stand-point of its mechanics, consists of a central arch or pedestal,—the pelvis,—which supports a perpendicular superstructure,—the trunk. Because the pedestal is subject to movement upon its axis, the superstructure to maintain an equilibrium must be flexible, and this flexibility is attained by the spinal column made up of many segments, by ribs articulating with it, by flexible costal cartilages, and by soft abdominal walls.

The trunk supports three weights which are attached to its summit,—viz., the arms and head. Upon the position of the pelvis below, and the adjustment of these elevated weights, the shape of the spinal column in health mainly depends.

The pelvis rests upon its ischia, or upon its column-like supports,—the legs,—at an angle more or less oblique, in which position it has the power to rock backward and forward, and from side to side.

The absence of bony landmarks, posterior and anterior, upon the same plane of the pelvis, makes it difficult to measure its actual angle of anterior inclination. The prominence of the spinous process of the last lumbar vertebra, and the upper border of the symphysis pubis, are points which have been chosen by a good many from which to make measurements. Others, myself among the number, have preferred to measure from the sacro-vertebral articulation, a point readily found by placing a rule with sliding bar firmly across the crests of the ilia, and measuring downward an inch; the depression which indicates its location is found very near this point, especially if the individual to be measured bends backward or forward. The angle with the vertical, formed by measuring from these points, has been termed the “angle of obliquity of the pelvis.” Movement upon its axis laterally may equally well be called “lateral obliquity of the pelvis,” adding, for the sake of distinction, the words “right” and “left.”

The normal position of the pelvis with the body in equilibrium in the upright is, without doubt, such a degree of obliquity as is necessary to place *the weight of the abdominal viscera upon the bony arch of the symphysis pubis, and the lower anterior portion of the abdominal wall.* In this position, when there is no lateral

inclination, the pelvis supports the spinal column and all the structures connected with it, not only in symmetrical position, but so placed that a minimum amount of muscular force only is required to maintain them in equilibrium. (See Figs. 1 and 2.¹)

Within the pelvis the uterus poises obliquely upon the summit of the vagina, where it is steadied by its lateral ligaments; these, by their broad insertion into the middle of its body and their firm mooring to the bony wall of the pelvis, are well calculated to maintain it in this its most permanent position. Loops of intestine dangle around its fundus, but with the pelvis at a normal angle they do not act as weights upon it. A full rectum or bladder rocks it forward or backward temporarily; muscular movements and readjustments of the upper weights so change the shape of the trunk as to cause this loosely-placed organ to make more or less wide excursions, from which, however, if it be in a healthy condition, gravitation brings it back, *provided the pelvis retains or regains its normal inclination.*

What figures represent this normal angle of obliquity? In looking up the literature of the subject, I find that John George Roederer, in 1751, called attention first to this subject, but his measurements are not recorded. From his time to the present more than fifty observers have measured this angle, and have given averages which range from 20° to 75° . Some mention the points from which measurements were made, others do not. As the angle varies with the point of elevation from which it is measured, these statistics are of little value to us in this study of the subject. Schröter² quotes Herman Meyer as saying, "The inclination of the pelvis varies very much in the *same* individual in the standing position, depending especially upon the degree of abduction and rotation of the thighs." That much depends upon the position of the legs in standing is proved by the fact that a variation of 20° can easily be made in the inclination of the pelvis by most women, by first placing the legs firmly in extension (with the calf muscles strongly in action), and then relaxing until the knees become slightly bent beneath the trunk.

In order to obtain measurements of the pelvic obliquity in healthy women, and in those suffering from uterine disease, for

¹ The outline drawings accompanying this paper are modified from Kellogg's "Outline Studies of the Human Body."

² Geburtshilfe, Bonn, 1888.

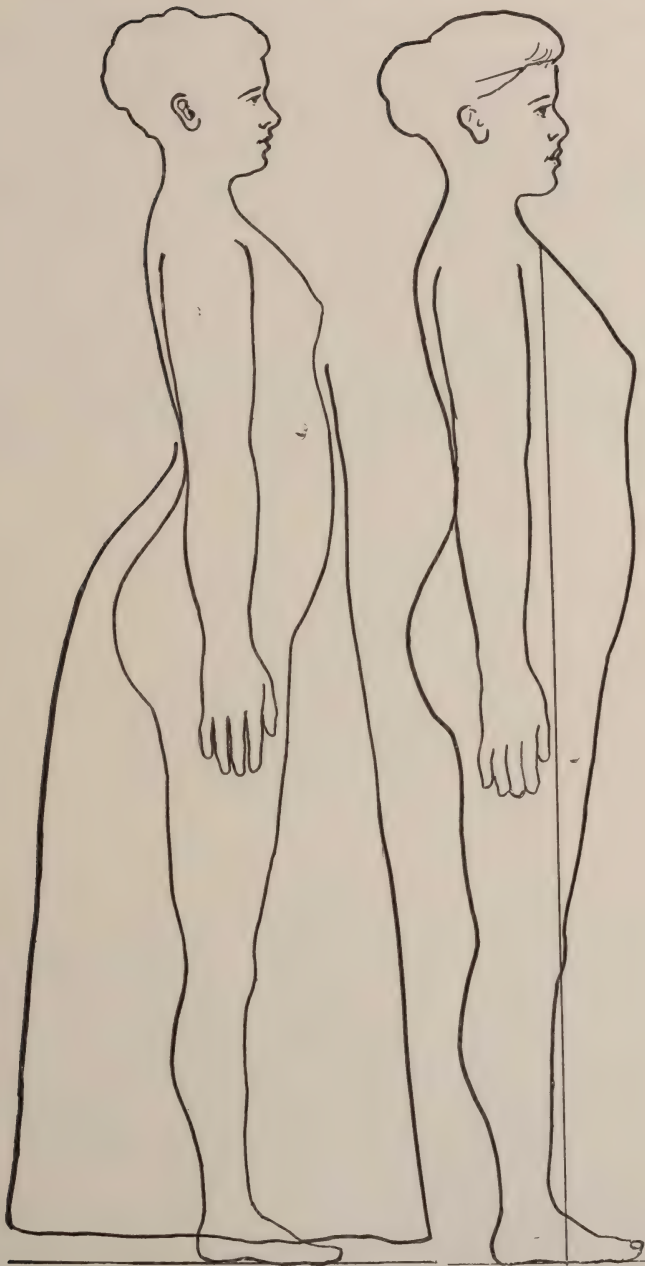


FIG. I.

FIG. II.

purposes of comparison, it was necessary to invent an instrument, as I knew of none in this country. The one which I have used for the statistics which accompany this paper was devised by Dr. Fred. Baker, of California, and myself. As is often the case, the first one made proved unwieldy, although its markings were practically correct. For assistance in planning the more perfect instrument which I shall describe, I am indebted to Dr. R. L. Dickinson and Dr. B. B. Mosher, of Brooklyn; for its careful construction, to Mr. Julius Pfarre, of Messrs. Tieman & Co., New York. I have taken the liberty of naming it a "pelvic obliquimeter." It consists of a grooved upright standard, attached to a solid horizontal platform. Upon the latter the person to be measured stands. A sliding bar within the upright standard (Fig. A) permits adjustment to the height of different individuals.

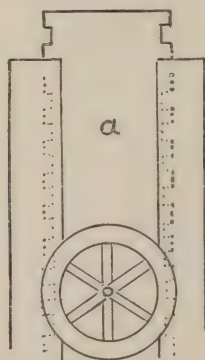


FIG. A.

Two caliper-like arms are attached to the sliding bar, the posterior of which (Fig. B, *b*) is stationary (for application to the sacro-lumbar articulation). The anterior (Fig. B, *c*) is provided with a slot, which not only allows lengthening and shortening of the arm, but also permits vertical movement around its pivot. An index needle projects from the posterior extremity of the anterior arm, which moves over a graduated arc (*d*, *e*) placed behind it. As the arm drops to the level of the symphysis pubis, the angle of displacement may be read in degrees on the arc.

With my first instrument I measured the obliquity of the pelvis in forty women between the ages of 16 and 70 years, using as landmarks the sacro-lumbar articulation and the upper border of the pubic symphysis. Of this number eighteen gave no history of pelvic disease, functional or organic. The remainder had suf-

ferred from some form of pelvic disturbance from two to twenty years.

Those of the first class stood habitually with knees firm and chest elevated,—practically the military position. Their pelvic obliquity in standing varied from 37° to 48° (see tables appended). Their sitting posture was observed to be equally upright, although it was not measured. Of the remaining number, fifteen had retrocession and retroversion uteri, while six had anteversion or ante-flexion.

Those suffering from retroversion with its attendant limitations, with but one exception, held the pelvis at an inclination varying from 25° to 30° only, and rolled it still farther back in sitting. They stood habitually with knees bent, and had poorly-

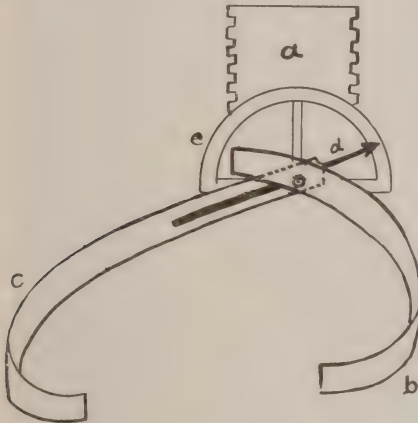


FIG. B.

developed calf-muscles. In searching their history to find if this habit of posture was acquired as a *result* of pelvic discomfort or otherwise, it was found in a number of instances that the patient was able to recall having been criticised in early life for projecting the abdomen forward. One who had suffered upward of twenty years (during six of which she had worn a pessary) said she “had been ridiculed by her family all her life because she had poked out her stomach.” It would seem, therefore, that the condition was the *result* rather than the cause of this habit of posture.

Six women had anteversion or ante-flexion uteri. In these cases the pelvic obliquity ranged from 29° to 33° .

A digital examination made *per vaginam* with the patient

standing in her habitual position discovered exaggerated intrapelvic pressure in all cases where the pelvic inclination was less than 33° . This pressure increased as the angle lessened. If one of these patients was placed for a few moments in the *modified* "knee-chest position" (*i.e.*, with abdomen well supported), to drag the intestinal loops out of the pelvic cavity, and re-examined with the pelvis at 38° inclination, the intrapelvic pressure was not observed. It returned slowly, however, when the habitual angle was again regained.



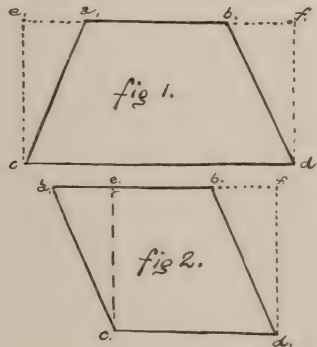
FIG 3.—Showing that pubic symphysis is in front of sternum. (Bernard Roth, M.D.)

Let us for a moment consider the mechanical changes which accompany an abnormal lessening of the angle of obliquity of the pelvis.

The spinal column loses a portion of its anterior lumbar curve, which makes room for the abdominal viscera to drop backward in this region. The symphysis pubis rotates outward and upward, taking a position upon a plane with or in *front* of the summit of the sternum. (See Figs. 3, 4, and 5.) This movement

lessens the distance between the origin and insertion of the rectus abdominis muscle, thus tending to weaken its power to contract. At the same time the inclination of the abdominal wall is so changed that intra-abdominal pressure takes a direction downward and backward instead of downward and forward.¹ The result of this movement is to push the contents of the abdomen into the upturned inlet of the pelvis, instead of in front of it, upon the firm bridge of pubic bones made for its support.

When we think of sixteen or eighteen feet of small intestine, more often than otherwise weighted with the products of an imperfect digestion, and distended by gas, swinging upon a relaxed and lengthened mesentery, and crowded into the pelvis not only by gravitation but by abdominal and corset pressure, we easily



recognize the cause of the increase of intrapelvic pressure observed in the cases described.

But what about the uterus itself in a pelvis held at an angle of 25° ? The force of gravitation strikes its fundus at a point posterior to that which is normal, swinging its weight backward

¹ Moreover, that lessened obliquity of the pelvis *in itself* produces actual increase of pressure can be demonstrated by a law of hydrostatics,—i.e., the pressure upon the floor of a vessel containing fluid depends on the area of that floor and the depth of the liquid. In Fig. 1, let *a, b* be the waist line, narrowed by tight bands or corset steels, *c, d* the abdomino-lumbar line, lengthened by the approach of the pelvis to the horizontal. The contents of the abdominal cavity thus form a cone *a, b, c, d*. But, by hydrostatics, the pressure on the floor of this cone is equal to the pressure on the floor of a cylinder *e, f, c, d* of the same height and altitude as the cone.

With a normal waist-line and the pelvis held in normal obliquity, the altered conditions may be illustrated by Fig. 2, the lettering on which corresponds to that on Fig. 1. The amount of pressure in this cone is equal to that on the base of the cylinder *e, f, c, d*. It is easily seen that the base line being shortened by the increased obliquity of the pelvis, the cylinder is smaller in Fig. 2 than in Fig. 1, and the pressure of the mass *a, c, e* no longer falls on *c, d*.

and downward, thus changing the relation of its summit to the vagina, just as we have seen the relation of the abdominal viscera to the inlet of the pelvis changed.

This backward movement or retrocession may be the only change in the position of the uterus caused by lessened obliquity of its bony case. It is liable, sooner or later, however, to move still farther from its normal place, or to become moulded into new shape by pressure from above. Temporary increase in its weight (after childbirth), relaxation of its supports due to general anæmia or an acute illness, and many other causes favor such a change. The shape and position which it shall assume depend upon the angle at which the superimposed weight impinges upon it and the direction in which gravitation draws it.

The school-girl at her books rocks the pelvis backward, reducing its angle of inclination to 23° , and then encroaches still more upon the space for the abdominal viscera by dropping the weight of arms and head forward; at her age normal invagination of the uterus may not yet have become complete, hence the cervix, closely fastened to the pubis, moves upward and forward with it, while retrocession of the body occurs. Can it be otherwise than that pressure from above will mould the fundus into the shape which we so often recognize later, as forward, backward, or lateral flexion?

The shop-girl stands in this position all day. The seamstress sits in it. The house-keeper alternates standing with sitting. In all, the increase of weight in the uterus during menstruation exaggerates the strain.

Retroversion uteri seems to be the more common lesion, produced by this habit in the adult, especially when the obliquity of the pelvis is lessened to 25° , or even to 29° . When it measures 30° or 33° *anterior* positions of the fundus seem to obtain in the few cases I have studied.

What are the causes, we ask ourselves, which tend to produce the habit of rolling the pelvis backward? Out of ten girls, under 16, measured by me, six had well-developed calves, showing that they had stood habitually with knees firm and walked with



FIG. IV.

energy. Each of these girls held the pelvis at an angle above 33° . The remainder had soft, small calf-muscles, and evidently stood with bent knees, and walked with leg-muscles weakly active. Nearly all of the latter number carried the pelvis at 33° or below. Bent knees in standing mean relaxation of the muscles which hold the pelvis at its normal angle of obliquity. Hence I place as one underlying cause a lack of training in childhood into right habits of posture in standing.

Articles of dress, which by their weight and in other ways fatigue the legs, favor relaxation of muscles. High-heeled shoes—*i.e.*, over half an inch—make it impossible to stand with knees firm; hence their influence in lessening pelvic obliquity. The corset steel, as it bends, makes pressure upon the soft abdominal wall in the region of the waist line; approximation of the anterior body line to the posterior moves backward the centre of gravitation proportionately, and in this central region of the upright column it especially tends to unbalance the body; the latter, however, regains its equilibrium by throwing the pubis upward and outward, and the weights attached to the upper region of the trunk forward and downward. The posture is a familiar one, and is well shown in Fig. V.

The seats provided for children and adults, from the infant rocker and the school-room chair to that of the lecture-hall and church, are all responsible in a large measure for this habit of sitting. It is impossible, in by far the larger number of such seats, to place the pelvis at the normal angle and at the same time use the back of the seat to support the shoulders. Luxurious cushions and soft upholstery tempt



FIG.V.

the pelvis into positions unknown to our erect grandmothers, whose hard-seated, straight-backed chairs, alas! we have tied with ribbons and placed in a corner.

In-door sedentary lives, in over-heated houses and school-rooms, and many similar wrong conditions (which it is the duty of physicians as guardians of the public health to correct), all these produce habits of posture which it would seem have a more potent influence than has generally been recognized in the production of pelvic diseases in women.

(TO BE CONTINUED.)

Municipal Hygiene the Greatest Need of the South.

BY GEORGE TROUP MAXWELL, M.D.,

Jacksonville, Florida,

Member American Academy of Political and Social Science, etc.



THE primary object of this congress, as I understand it, is to advertise the industrial resources of the South, and thus to increase immigration. To a superficial observer no scheme could have been devised that would have been encompassed by so much of plausibility, or supported by such an array of facts and more irresistible logic; none of more far-reaching design, or better calculated to yield grand and beneficent results.

The Southern States, extending over fifteen degrees of latitude and more than thirty degrees of longitude, embrace a territory which presents every variety of topography, an extensive range of climate, and productions which make them considered as a section absolutely self-sustaining.

So far as physical resources are concerned, the South offers the highest inducements for the profitable investment of capital; while the educational, social, and religious advantages which she presents as inducements to intelligent settlers are unsurpassed by those of any part of our country. Any plan which will have the effect of attracting attention to these important facts, ought not only to be endorsed, but should command the active encouragement and support of every man and woman within her borders; for her unlimited resources await the active energies of the industrious settler.

The great needs of the South are population and capital. These should be forthcoming, and would be, but for one, at present, almost insuperable obstacle,—viz., an unfounded impression that her climate is unhealthy.

But upon that subject I shall speak with greater particularity as it affects the growth and prosperity of "the flowery kingdom" whence I came, the beautiful and healthful State of Florida.

Florida, containing 59,000 square miles, is the largest State east of the Mississippi river. Prolonging herself almost into the tropics, she divides the Gulf of Mexico and the Atlantic ocean. Her geographical position and topography give her, as meteorological and vital statistics attest, as delightful and healthful an all-the-year-round climate as is to be found upon the surface of the globe. In winter the chilling blasts of the blizzards of the North are tempered as they reach her boundaries by—

"The sweet south,
That breathes upon a bank of violets."

And in summer the differing power of absorption and radiation of heat between earth and water causes a restlessness of the atmosphere which results in refreshing and invigorating breezes. A noteworthy feature of the climate of Florida is that, during the so-called heated terms of summer, the nights are delightfully cool, and invite the gentle embraces of "nature's sweet restorer."

I have spent many summers in the North, but most of my life has been passed in Florida, and I feel justified in asserting that the sustained, almost suffocating heat through successive nights and days, so common at the North—which is necessary for the stimulation of rapid growth and maturing of all kinds of vegetation during the comparatively short season in northern latitudes—is unknown in Florida.

I realize that my brief and feeble description of the climate of Florida falls far short—as any attempt at painting with words experiences which affect sensation only must—of portraying its charms. I must, therefore, say to doubters, by the paraphrase of an old maxim,—Come, for "feeling is believing."

Now, I propose to give you a surprise, for I am sure you will wonder when I say that that which is and ought to be regarded as her chief charm has been made to appear as the distinguishing curse of Florida. This has been accomplished by perversions of facts and the total disregard of reason.

Her lovely and healthful climate, which draws within her borders, annually, thousands of invalids who come to enjoy the benefit of its health-restoring properties and tens of thousands of tourists who rush from their frigid homes to bask and revel in her genial sunshine, is made in these latter years the bugbear of the continent. It was not always thus. But it has in recent years been proclaimed by the highest health officials of the republic that "Florida, because of her mild climate and proximity to the West India Islands, is the danger-point of the Union!" And this calumny has not only been submitted to and acquiesced in by her people, but it has been given "damnable iteration" by every officer of the State and of the Union. I am here to-day to declare and to prove that the charge is an unqualified slander! History and logic affirm that it is a lie, and furnish substantial proofs of the correctness of the affirmation.

The name—yellow fever—has been made in these latter years to excite a degree of terror that does not attach to any other disease, except, perhaps, to cholera; and Florida has been stigmatized as the "gateway" through which it is most likely to find entrance into this country.

This false notion is based upon three assumptions: First, that yellow fever is essentially a disease of warm climates; second, that it is contagious; and, third, that it is an exotic, which is transportable, and is always imported into the United States. Not one of these assumptions is true.

(1) History shows that during the first two centuries after its recognition in this country yellow fever was a disease of Northern cities. The first epidemic of yellow fever in the United States occurred in New York in 1668; and its first appearance in New Orleans was in 1769, or more than a century later. There were ten epidemics in New York before the first in New Orleans.

Was that because the climate of New York was then mild and that of New Orleans cold? Or was New York then nearer to the West Indies than New Orleans?

Boston has had ten epidemics of yellow fever, New Haven six, Providence five, New York nearly seventy, and Philadelphia about fifty. So frequent were epidemics of yellow fever in the two last-named cities, till about the close of the first quarter of the present century, that the eccentric John Randolph, in a speech in Congress on the tariff, April, 1824, said, "If we were to act here on the English system, we should have the yellow

fever in Philadelphia and New York, not in August merely, but from January to June and from June to January."

Per contra : Yellow fever has prevailed only five times in St. Augustine, the oldest city in the United States, which was owned and occupied for nearly three centuries by nations which owned and occupied at the same time the West India Islands, with which there was unrestricted intercourse. Jacksonville has had only three epidemics ; and Tampa, the most southern city of the main and the nearest to Cuba, has had but five ! Behold the contrast, and explain it, if possible, upon the ground of climate.

Was it difference in climate adverse to Savannah that has caused only eleven epidemics there, while in Charleston there have been nearly seventy ?

These expressive facts which history furnishes could be extended indefinitely. Must there not be something, I ask, other than climate to explain them ? One of the greatest needs of Florida and of the South is that the minds and consciences of her health and other officials shall be educated so that they may learn and appreciate truth.

But how will the advocates of the notion that yellow fever is a disease of warm climates account for the fact that residents of tropical countries do not contract the disease unless they go into infected localities ? Residents of tropical countries outside the infected cities are as exempt from yellow fever as are the inhabitants of Maine and Manitoba. The literature of this question is full and conclusive. Dr. Sternburg has testified to this fact as it applies to Brazil and Mexico ; and my friend, the late Dr. Pacetti, who practised medicine at Cardenas, Cuba, twenty years, told me that his experience conformed to that of others. But the testimony is quite as conclusive that, if residents of tropical countries, who live outside of cities, visit infected localities, they, like people in other countries, frequently fall sick of the disease.

Do not these established facts point to local rather than to climatic *causæ causantes* yellow fever ? This conclusion is supported by two authorities, who, by virtue of high official positions, will have, perhaps, the greatest weight.

Dr. Sternburg, surgeon-general of the United States army, in his report to President Cleveland of his official visit to Brazil, said, "It is not too much to say that by well-executed sanitary measures the endemic plague so fatal to strangers could probably be entirely banished from this beautiful city (Rio Janeiro) which is so highly favored by its situation and surrounding."

And Dr. Hamilton, in his last report (1890) as surgeon-general of the Marine Hospital Service, said, "The United States would be the gainer, even in a pecuniary sense, if she were to donate to the Cuban government sufficient funds to make Havana a healthy sea-port. Yellow fever is almost always present in Havana and Rio Janeiro, but it is beyond question that those cities could be made clean and healthy if proper measures were taken."

It will be seen that these distinguished gentlemen offer no suggestion looking to change of location or climate of those plague-stricken cities; yet they express themselves as confident that the disease can be eradicated and banished from them. Why? Because, if their logic is good, as I believe, local sanitary measures are all-sufficient to accomplish the work. Then may we not, on their authority, eliminate the question of climate? May we not believe and teach that the disease is of local origin, and may be banished by local sanitary measures?

If yellow fever is, as both of these gentlemen teach, despite their statements above quoted, a disease of warm climates, how can the sanitary measures they recommended as certainly efficacious, alter the geographical fact that Havana and Rio Janeiro are tropical cities? Do they not, in fact, admit that the disease is caused by local insanitary conditions which are removable, and not by climate, which is unchangeable?

Yet, despite these admissions, which history and reason establish as true, these gentlemen persist in slandering the hygienic character of Florida and of the South,—to their irreparable injury, till the calumny shall have been exposed and refuted. Florida, with 59,000 square miles of territory, with many and varied and peculiar productions, with the finest climate on the globe, showing a lower death-rate than any State of the Union, except two, has a population hardly sufficient to make a fourth-class city. To state the fact is enough to prove her need of immigrants.

But how can they be induced to come to "dangerous" Florida? Will any man in his senses move with his family and property into a State which has been declared to be "the point of danger," not only to her residents, but "to the continent?" Why temporize with such expedients as agricultural, mechanical, and mineral exhibitions when the vitals of the State are pronounced and believed to be corrupt?

South Carolina, Georgia, Florida, and the Gulf States may emblazon their advantages upon the skies ; they may paint them on every tree and rock ; they may advertise them in every newspaper in the country ; they may print them in pamphlets by the millions and scatter them throughout the civilized world ; but so long as the slander that they are particularly liable to yellow fever, because of their mild climate and proximity to the West Indies, is believed, all attempts to induce intelligent immigrants to become settlers will be fruitless.

Rob Florida of her incomparable climate ; or let the world understand that this peculiar favor of Providence is a curse and not a blessing ; let Florida exchange climates with Maine that yellow fever may be driven from her borders, and what would be left of her ? Her superb system of railroads, traversing almost every neighborhood, would become valueless ; her palatial hosteleries, unsurpassed for splendor and comfort, would be the hiding-places for owls and bats ; her gardens and groves, which supply to the continent the choicest vegetables and most luscious fruits, would be thrown again into the range for wild cattle, and the beautiful cities and towns which have sprung into being within the last twenty years would be abandoned and deserted. Florida should be grateful that her officials have permitted the belief that she is safe, at least, in winter ; though even that privilege has been threatened by the charge that there is a greater liability there than elsewhere to the hibernation of the yellow fever germ.

I have said that it was not ever thus. The barbaric methods of prevention now in vogue, and the "insensate cruelties" now practised by health boards and officials have come into operation within less than a score of years. In 1877 yellow fever was epidemic in Fernandina, Jacksonville, and St. Augustine. Jacksonville essayed to protect herself against Fernandina, where its presence was first acknowledged, by a rigid shotgun quarantine, and failed. Instead of causing a panic throughout the country, refugees from the afflicted communities were invited through the press, by resolutions of town councils, and private correspondence, to seek protection in the interior towns of the State. They fled in great numbers, crowding into Tallahassee, Monticello, Madison, Starke, Waldo, and other places. Many refugees were attacked by the fever after reaching those "cities of refuge." In Monticello there were fifty cases and six deaths. Dr. Gaskins told me

that he attended twelve cases in Starke among the refugees from Fernandina. There were cases of fever and an occasional death in several other places. The disease was not communicated to a single resident of the places which so generously afforded sympathy and hospitality. This was in the days when the sanitary interests of the State and nation were in the hands of men who knew the nature of yellow fever.

Behold the contrast under the new *régime*! Ten years later, in May, 1887, yellow fever was declared to be epidemic at Key West, a small island more than 100 miles from the nearest point of the main land reached by the usual routes of travel, and perhaps 200 miles from Orlando, in the interior. But the local railroad agent at that place sold \$5000 worth of tickets in forty-eight hours after the announcement to persons who were to fly from the imagined danger. And when, in the fall, the fever was declared to be in Tampa, every city, town, and farm-house was converted into a fort, garrisoned by armed men, to repel the wretched refugees who had left the comforts of home to seek safety, and who, instead of the sympathy and hospitality they expected and hoped for, were driven into the woods like dangerous wild beasts. And Tallahassee, and other cities of middle Florida, hundreds of miles distant from the infected locality, stationed armed guards on the west bank of the Suwanee River to prevent the passage of "suspects." Now I think you will agree with me that either yellow fever had completely changed its nature in the ten years that intervened between 1877 and 1887, or the people, under new instruction, had been revolutionized from the noblest of Christians into the most unfeeling barbarians. This is the feast of which settlers in Florida are invited to partake.

Under existing regulations there is no escape for the well, if the officials can prevent it. Upon the happening of an epidemic or of even a suspicious case, as at Sanford, in 1889,—which sent a thrill of horror not only throughout the State, but over the whole country, depressing the stocks as far away as Chicago,—an armed guard is placed around the doomed locality, and well as well as sick are corralled for ten days or longer with the certainty that if an epidemic results, suffering will be increased and deaths multiplied.

(2) That yellow fever is a non-contagious, non-communicable disease is a point so well established, and so generally admitted,

that it seems hardly worth while to discuss it. Dr. Sternburg has set the facts forth so clearly that I will do little more than quote from his paper,¹ in which he says, "The yellow-fever patient, however, does not directly endanger those who come near him any more than a gelatine culture of the spirillum of Asiatic cholera or the anthrax bacillus places in danger the student of bacteriology who is engaged in studying it. It is well known to the people of the city of Mexico that a visit to the sea-coast city of Vera Cruz during the epidemic season is likely to result in an attack of yellow fever. It is also well established that those who fall sick with the disease after their return to the city of Mexico never communicate it to others who are closely associated with them as attendants, etc. The same is true of the health resort, Petropolis, located in the mountains within a few hours' ride of the city of Rio Janeiro. Frequently individuals fall sick in Petropolis who have visited the infected city of Rio Janeiro. Never do they communicate the disease to others.

"This is also the experience of the physicians in charge of hospitals,—e.g., the Charity Hospital of New Orleans,—so long as the hospital and its vicinity remain uninfected, cases do not originate in the hospital, although yellow fever patients may be admitted to the wards with unacclimated persons suffering with other diseases, and be cared for by susceptible attendants."

Speaking of the experience of the camp near Memphis, he said, "*In no case did they communicate the disease to their families or bed-fellows.*" Dr. Sternburg concludes his case thus: "Evidence of this kind could be extended to fill a volume, but sufficient has been presented to establish the statement made, and the reader may be referred to the proofs of non-contagion in the second volume of the classical work of La Roche."

To avoid prolixity, I will cite only one case which has peculiar force and interest.

At the Sand Hills Hospital, north and in sight of Jacksonville, hundreds of yellow-fever patients were treated during the epidemic of 1888. Among the nurses was an unacclimated woman from the North. When the hospital was closed she made preparations to come into the city of Jacksonville. Dr. Sollace Mitchell, who was the surgeon-in-charge of the hospital, endeavored to dissuade her from coming to the city, and warned

¹ Reference Hand-book of the Medical Sciences.

her of danger. She was unyielding, however, and argued that as she had been in the closest relations with hundreds of patients, day and night, during two months, and held the dying in her arms, and her person and clothing had been bespattered with black vomit, she must be protected. She came into Jacksonville, and in about a week was attacked with yellow fever, adding proof to the doctrine that places, and not persons, are dangerous.

On the other side of this question stand Dr. Hamilton, the ex-surgeon-general of the marine hospital service, the present surgeon-general of that service, and his army of dependants, reinforced by every health official, so far as I am informed, of the Southern States. How much influence personal and pecuniary considerations have in determining doctrinal alliance, I am unwilling to express an opinion; but the unanimity of views and practice which prevails among that class of officials is somewhat remarkable.

Dr. Hamilton¹ said, "Yellow fever is mildly contagious." How "mildly," Dr. Hamilton did not condescend to instruct the inquiring; but, judged by his practice in Florida, there is not a malady in the catalogue of diseases which will compare in facility of communication by contagion with yellow fever. Dr. Hamilton, I have heard, has never approached the bedside of a patient sick with yellow fever. Dr. Hutton, of the Marine Hospital Service, echoes his leader's notion as to the "mildness" of the contagion; but Dr. Porter, the State health officer of Florida, "out-herods Herod" by declaring that "yellow fever, under ideal conditions of atmosphere and environment, is non-contagious. Until our sea-ports in southern latitudes arrive at a state of perfection in municipal cleanliness and sanitary idealism, health officers are morally and legally obligated to treat yellow fever as a dangerous, communicable disease." Yellow fever, according to Dr. Porter, is not contagious *per se*, like small-pox, scarlet fever, measles, etc.; it is contagious only in the absence of "ideal conditions of atmosphere and environment." Till these are reached, it is "a dangerous communicable disease!" There is something "new under the sun," and Solomon was a fool. Does the ideal ever become the real? Alas, alas! the tribulations of the unfortunate "sea-ports" which are unwisely located in "southern latitudes" are to have no end. Cities like New York, located in northern latitudes, have, Dr. Sternburg says,

¹ North American Review.

banished yellow fever by municipal improvements, which, however, are far from "ideal;" but there is no hope for "Southern sea-ports." Otherwise, Othello's occupation would be gone.

(3) That yellow fever is a disease of local origin has been so clearly demonstrated by my friend, Dr. J. C. LeHardy, following La Roche and others, that I shall not develop the facts except those of very recent date.

(TO BE CONTINUED.)

Dental Hygiene.

BY EDWARD BUMGARDNER, M.D., D.D.S.,

Lawrence, Kan.



THE mouth is intimately associated with all parts of the body. Not only is it connected by continuous mucous membrane with the entire alimentary canal, the respiratory apparatus, the nasal cavities, the middle ear, and the frontal and ethmoidal sinuses, but there is a close relationship between it and the rest of the body through important nerves and blood-vessels. These anatomical relations indicate a corresponding sympathy in function. The preparation of nourishment for the whole system is an important function of the mouth, but not the only one. Speech, respiration, expression, and all of the special senses depend more or less upon the mouth, as well as upon the other parts with which it is associated. Diseases beginning in the oral cavity are never confined there, and they are liable to extend to any of the contiguous parts. The general health cannot be perfect when disease is in the mouth. Oral hygiene, then, is of great importance. The organs which are most frequently attacked by diseases which destroy their usefulness are the teeth. An injury to a tooth never heals. When a part of a tooth is destroyed it is gone forever. A filling can only prevent further damage. Yet nature intends for our teeth to last throughout life, and with proper care they will do so. That so many people lose their teeth is no evidence that their loss is more unavoidable than the loss of sight or hearing. The habits of the average American are destructive to the teeth, but an equal amount of abuse of the eyes would make him sightless as soon as

he is toothless. The present purpose is to indicate briefly the manner in which the teeth may be preserved in a healthy condition.

Nature provides us with two sets of teeth, a temporary set of twenty for use during childhood, and a permanent set of thirty-two for the rest of our lives. The child has five teeth on each side of each jaw. They are known by these names, beginning at the median line,—

Central incisors, erupted between 5th and 8th months.					
Lateral	"	"	7th	"	10th
Cuspids	"	"	14th	"	20th
First molars	"	"	12th	"	16th
Second	"	"	20th	"	36th

These teeth should all remain in place till the child is about seven years of age. At that time they begin to be shed, and each is soon replaced by a permanent tooth. This is entirely a physiological process, and if the temporary teeth have been properly cared for, their removal will not require the use of the forceps. As the time approaches for them to be shed their roots are slowly absorbed, this process beginning at their apices and continuing until only the crowns remain, when they usually drop out. These teeth are shed in the same order in which they were erupted, provision thus being made for the eruption of the twenty corresponding permanent teeth in the same order. The temporary incisors and cuspids are replaced by permanent teeth of the same form and name, but the places of the first and second temporary molars are taken by the first and second bicuspid of the permanent set. The twenty permanent teeth corresponding to those of the temporary set are erupted at about these ages,—

Incisors	from	7th to 9th year.
First bicuspid	"	9th to 10th
Second	"	10th to 12th
Cuspids	"	11th to 13th

But at the age of six, before any of the temporary teeth have been shed, a large grinder erupts posterior to the second molar. This is the first permanent molar, and if lost it will never be replaced. This fact is not generally known by parents, who do not always understand that a permanent tooth can appear before any of the temporary teeth have been shed. The first permanent molar has a period of usefulness longer than that of any other tooth. This makes its preservation especially desirable. The failure of

parents to recognize it as a permanent tooth, however, frequently causes it to be neglected till it is one of the most difficult teeth for the dentist to save. The second permanent molars are erupted at about twelve years of age. Among dentists they are sometimes known as the twelfth-year molars. The third molars, or "wisdom teeth," are usually erupted between the ages of seventeen and twenty-one. Thus we see that the adult has thirty-two teeth, twenty of which occupy the positions which formerly belonged to the temporary teeth, while twelve may be called properly *first* teeth.

The importance of caring for the teeth can hardly be over-estimated. Many diseases of the general system are caused either by poisons given off by decaying teeth or by a failure to have the food properly masticated. When we consider the relation of the teeth to health, comfort, speech, and expression, we are at a loss to account for the carelessness with which they are treated by people all around us. It is true that the public has not been sufficiently instructed in this matter by those who have made a professional study of the subject. It is also true that there are too many dentists who do not realize the value of the natural teeth, or who are unwilling to study the subject from a hygienic stand-point and give the public the benefit. But dentistry is advancing rapidly as a profession, and in all parts of the country are to be found educated and conscientious practitioners whose advice is freely given to those who ask for it. Such a dentist should be visited at least once a year. If he is permitted to examine the teeth frequently he will discover any decay or other disease before it has progressed far, thus making treatment less painful and more economical than it can be after long neglect. Between these visits to the dentist each person should take care of his own teeth. By following the professional advice of his dentist he will know what is best to do in his particular case, but I desire to give here some directions which will apply to all cases. "Cleanliness is next to godliness." Nowhere is cleanliness more profitable than in the mouth. Clean teeth never decay. It has been demonstrated that the cause of decay is an acid produced by the decomposition of particles of food remaining on the teeth. This acid gradually dissolves the lime salts of which the teeth are composed, and a cavity is the result. A toothpick and brush should be used after each meal. Soft wood picks often do more harm than good. Those made of hard

wood are better, and quills are best. Waxed floss may be drawn between the teeth where the pick will not reach. Brushes should not have all the bristles the same length. The "prophylactic" has the ideal shape. A vertical motion of the brush is more effective than a horizontal motion. A good tooth-powder or paste may be used occasionally. If a mouth-wash is desired, listerine cannot be excelled. Never use an advertised dentifrice unless it has the unqualified endorsement of a dentist who knows its composition. Teeth need to be *used*. At the same time, things which are liable to crack the enamel, such as nuts, should never be taken into the mouth. The enamel is also liable to be cracked by very hot or very cold food or drinks, and especially by changing from one extreme to the other.

To return to the temporary teeth: they are to be cared for as diligently as the permanent. There are various reasons why they should be preserved until time for them to be shed. One reason is that they are *needed* by the child, who is growing and requires an abundance of properly-masticated food. Another is that premature loss of the temporary teeth interferes with development of the jaw and causes irregularity in the permanent arch. But if there were no other reason this would be sufficient. The child that is taught to give proper attention to the temporary teeth will form habits which will insure the preservation of the permanent teeth in later life. Dr. Holmes's saying is a true one that "man is a bundle of habits." While parents are responsible for the actions of their children they should so guide their conduct that when they are grown they will be bundles of *good* habits.

Whole-Wheat Flour.

BY N. A. WHEELER,

Alpowa, Wash.



COMMENCING with the year 1870, my persistent experimental experience and practical personal acquaintance with widely different articles of food has probably greatly exceeded, in methodical performance and successful achievement, the chaotic theories and intermittent practices of many professional hygienists.

A recent appreciative article in THE ANNALS OF HYGIENE,

October, 1894, interestingly communicates information positively pleasing to conscientious hygienic collaborators, but presumably inadvertently omitted to mention two or three very important points in regard to the certain or uncertain advisable daily consumption and dietetic value of whole-wheat flour.

In the daily performance of severe manual labor I have found the old-time coarse Graham too laxative. Peristaltic action is abnormally quickened, and this high and hastening speed in the vermicular movements of nature's intricate vital machinery seems to unduly accelerate premature exhaustion of its forces. D'sinclination for a commendable, unimpassioned, or vehement muscular effort results in unpraiseworthy inactivity. My accustomed firm flesh becomes soft. My muscles are limp. There is no strong determinate feeling of physical action present. The mind moves willingly and quickly enough, but the seemingly humiliated flaccid muscles supinely and qualmishly disobey the commanding will-power quite too soon to satisfy the late exactions of manual labor and modern muscular ambition, and naturally an unmistakable feeling of fatigue supervenes. This is one of the most crucial tests of the adaptability or inadaptability of Graham to completely or incompletely satisfy the requirements of human nature under extreme sinewy service. There is no tendinous simulation here. Nature under this kind of labor and food *demand*s rest and *takes* it. Impalpable whole-wheat flour for an occasional change is most excellent and highly beneficial for unmistakable prospective good health, but I find that great unwearied physical endurance of forced muscular action is not possible with its undeniable laxative properties and relaxing tendencies. Individual and family inherited idiosyncrasies inharmoniously combined with numerous inconsistencies and fleeting home-made fancies concerning food requirements for mental and muscular work exist to a considerable extent, but aside from these merely imaginative conceptions there is another well-founded fact which causes Graham to be ignored by the masses. Fine white flour will keep sweet and unimpaired for several months, perhaps years, but Graham will not. It is well known that ground coffee quickly loses its fine aroma. This applies with equal force to impalpable whole-wheat flour and meal. Impracticableness at present precludes the possibility of procuring daily a fresh supply from the mill. Deterioration commences immediately after the grain has been broken, and in this natural but deceptive chemical destruction of

the original elemental constituents of the wheat there is a development of an objectionable and unpalatable bitter principle in the branny part that offends the taste. This naturally-developed bitter principle of deterioration has to be eliminated by skilful manipulation in the doughy state or disguised with some sweetening substance to overcome its unpalatability, and when the fact becomes widely known that it requires sugar to arrest or correct the seemingly inevitable dry decay and bitterness in this particular article of daily food, it at once becomes a most determined public demurrer and a hygienically regretful hinderance to its universal use. The circumspective housewife instantly detects and dislikes the changed and somewhat bitterish taste of Graham when it is only a few weeks old, and solicitously fears the undisguised displeasure of her guests should they make the unwelcome discovery at the table. Individually, the taste very closely resembles the bitterness of the hop in yeast, the almond, the olive, the roasted coffee-bean, and the seed of the peach in conserves, but my investigations have not been satisfactory in the direction of its healthfulness. Innumerable minute cankerous protuberances sometimes make their appearance in the mouth of the writer immediately after eating bread made from stale Graham flour, and at other times no unnaturalness is manifested and no inconvenience felt. Abnormal intestinal activity does not appear to be heightened by its moderate ingestion, but incontestable proof, personally, establishes the reluctantly-admitted fact of there being a greatly-increased irritation and consequent inflammation in the terminal excretory passage. Acridity combined with mild bitterness is its peculiar characteristic, and somewhat resembles the rancidity of oleic acid. From personal experiment the latter has developed aggravated symptoms in a hæmorrhoidal diathesis, and it is confidently believed that the abhorrent toxicological action of atmospherically oxygenized wheat-bran is similar, whether it be coarse or comminuted.

These unbiased and conscientious conclusions have been reached after many years of personal dietary changes, and most surely convince me of the desirableness and adaptability of newly comminuted Graham for a completely nourished system and long-continued good health, but an unusual firmness of flesh and an extraordinary stamina of muscle will not be supported by its daily use. It is not a prize-fighting food.

Athletic Training for Young Men.

BY SENECA EGBERT, A.M., M.D.,

Professor of Hygiene, Medico-Chirurgical College, Philadelphia.

THE following letter has been referred to me by the editor of this magazine for reply, although I must confess that I feel that possibly there are others better qualified to discuss it from the stand-point both of an expert and a sanitarian :

READING, PA., January 14, 1895.

EDITOR OF THE ANNALS OF HYGIENE :

Would you kindly advise in some future number a course of training for a crowd of young men who wish to become athletes without doing any injury to themselves? Any attention paid to this will be kindly received by—

READING BOYS' HIGH SCHOOL.

First of all, I wish to compliment my young friend upon his good sense in seeking a course of training that will fulfil the desires of himself and his companions "without doing any injury to themselves." I am about convinced that most of the physical evils that attach to the pursuit of athletics at the present day are due to an ignorance or lack of attention to this very matter of popular training. This is, perhaps, exemplified most clearly in the case of foot-ball, it being the most severe of the athletic pursuits in which the average boy or young man engages, but like risks, though in lesser degree, attach to base-ball, track athletics, etc., if there be not proper preliminary preparation and continued care of the body.

Apart from the injuries liable to be received in any single contest—the likelihood of which, I believe, can be greatly minimized by careful training—is the greater danger to the untrained of more serious and lasting harm to the system in general. Few persons realize the very large amount both of muscular and of nervous energy expended in a sharply-contested game or race, and, consequently, one who aspires to be an athlete and to enter into such contests will do wisely in subjecting himself to the discipline and training that are necessary not only to continued success, but also to insure benefit rather than harm to the physical

constitution. Moreover, a period of faithful and conscientious training will be of benefit both mentally and morally, as well as physically, and the subject will thus be the better rather than the worse for his devotion to athletics.

One important piece of my advice to the tyro is that he should have himself thoroughly examined physically by some one competent to do it before he enters upon his athletic work. This will reveal to him any possible weak spots in his system, which, with proper care and judgment, might be greatly benefited by exercise, but it may also discover certain organic diseases that would contra-indicate any but the mildest exertion. I feel that much blame is often unjustly placed upon athletics for results that occur, and that would have been obviated had this preliminary examination been made.

It will also be advantageous if at the time of the physical examination our young friend can also be measured according to one of the anthropometric systems now in vogue in the different schools of physical education. These measurements, when compared with the proper type, will indicate where his muscular development is deficient, and can be improved by special exercise, while they may also give their subject a hint or two as to the branch of athletics in which he will be most likely to excel.

Thus Zimmerman, the cyclist, is said to have a long thigh as compared with his lower leg, a combination obviously advantageous for cycling. However, I would advise that general rather than special excellence in any one line be sought, not only because the consequent development will be more symmetrical, but because, as Parkes says, "when all the muscles of the body are exercised probably no muscle can be over-exercised." For this reason the Pentathlon system of the Young Men's Christian Association is to be recommended.

In this connection, I am glad to call attention to the anthropometric charts issued by Professor D. A. Sargent, of Harvard. These are based upon investigations extending over several years and upon the measurements of several thousand individuals, and comprise the *table* charts, which are intended "to show the distribution of any American community as to physical power and proportions," and are furnished for either sex and for any age from 10 to 26 years, and the *skeleton* chart, which is to receive the measurements of the individual and is ruled to correspond to the table charts, with one of which for the respective age and sex it

is to be compared when properly filled out. By means of these any one may thus readily determine his relation in size, strength, and development to the normal type or standard for the same age and sex, and also have a record by which he or she can measure the gain from any course of training or exercise. In addition to these charts, which are furnished for \$1.00 a pair, and at lower rates in quantities for schools, etc., Dr. Sargent also publishes a small hand-book describing the various anthropometric apparatus, together with directions for measuring and testing the principal physical characteristics of the human body (price 25 cents), and a "Hand-Book of Developing Exercises" (price 75 cents), which latter, I am sure, will be found especially beneficial and instructive by my young friends, particularly if they have access to a fairly well-equipped gymnasium. For example, under the head of *Exercise* he gives the following *general* directions :

"In order to realize the best results from physical exercise, enter with earnestness and enthusiasm into whatever you undertake.

"While choosing a place for exercise, bear in mind that the chief requisites are plenty of light and fresh air.

"If you have been inactive for a long time, confine yourself for a day or two to free movements without weights.

"Gradually increase the time and amount of exercise, but do not continue it to exhaustion, and always end as gradually as you begin.

"Do not keep the muscles on the stretch. Relaxation should follow contraction, or, in other words, rest should follow exercise.

"The best way to secure local rest is to use the muscles of some other part of the body by a change of position or apparatus.

"Do not try to accomplish your best work at feats of agility or strength until your blood is circulating freely and you are thoroughly warmed and limbered up.

"The muscles should not be compressed by tight clothing.

"If the weather is cold, or if no opportunity for preliminary movement of the limbs is afforded, the muscles should be rubbed vigorously before putting them to a sudden strain, as in jumping, sprint-running, etc.

"Exercise daily and at regular times if possible. Do not exercise within two hours after eating nor a half-hour before.

"If over-heated or fatigued, a gentle rubbing down with a Turkish towel will promote surface circulation and prevent taking cold.

"Never reach the maximum of exercise until near the end of the season's training.

"Reduce the time and amount of exercise gradually, allowing two weeks to elapse before going out of strict training.

"At the end of six or eight months a complete change of work is advisable, alternating the regular system with other forms of exercise.

"For the student, the professional and the business man the best time for daily exercise is between the hours of 4 and 6 P.M."

Similar general and special directions follow as to diet, sleep, air, bathing, clothing, etc., and as to the special apparatus of the gymnasium, so that there is hardly a question on these subjects to which an answer will not be found in this excellent hand-book, and which it does not treat more fully than I can possibly do in the space allotted.

However, there is one point upon which I would like to lay some stress, and that is that abundant respiratory capacity and lung-power are essential for success in the pursuit of any athletic sport; consequently every effort must be made to develop these as far as possible, and this should be one of the first things attended to in the course of the training. In a former article of mine in this magazine,¹ I have quoted the following suggestions as being especially adapted for this purpose. They were originally offered by Dr. C. P. Linhart, formerly physical instructor of the Manhattan Athletic Club of New York:

"Care should be taken not to go through the following movements directly after a full meal or after prolonged or violent muscular exercise. At such times they might produce dizziness or even fainting.

"*Movement 1.*—Stand erect, the head thrown back, the chin close to the chest. Gradually fill the lungs as full as possible through the nose, at the same time raising the shoulders up and back about an inch above the natural position. This should consume ten seconds. Then allow the air to escape slowly through the nose, letting the shoulders assume their natural position in about ten seconds more.

"*Movement 2.*—Begin the same way as in No 1. After filling the lungs, drop the shoulders back and down as far as they will go, holding the breath for five seconds. Then exhale, while letting the shoulders assume their natural position quickly.

¹ Training for Bicycle Racing, March, 1893.

“Movement 3.—Let the arms hang down by the sides and gradually fill the lungs, as in No. 1, at the same time raising the arms, extended at the sides, slowly, until the backs of the hands touch above the head. This should take about ten seconds. Then exhale for ten seconds more, allowing the hands to fall slowly down again by the sides.

“Movement 4.—Begin the same as in No. 3, and when the lungs are filled and the hands touch above the head, hold the breath and drop the arms quickly down at the sides. Exhale naturally after five seconds of holding the breath. This movement is especially adapted to narrow-chested people, as it will broaden such a chest.

“Movement 5.—Fill the lungs slowly through the nose in about ten seconds, at the same time slowly raising the arms, extended at full length in front of the body until the hands are above the head and back of it as far as they will go without bending the back or knees. Then begin to exhale, letting the arms fall slowly down again in front, occupying ten seconds.

“Movement 6.—Begin as in No. 5, but when the lungs are full and the hands overhead, hold the breath for five seconds and drop the hands quickly down in front. Then exhale naturally. This movement is particularly adapted to shallow-chested people, as it will surely deepen the chest,—that is, lengthen its diameter from front to back.

“Movement 7.—Gradually fill the lungs to their utmost capacity during ten seconds. Then forcibly exhale until all the air possible is driven out. Throw the shoulders forward at the same time. Let the air escape with a loud whistle or hiss or a long-drawn a-a-a-h.”

Each exercise or movement is to be repeated a number of times, and the point to be remarked is that it is increased chest capacity that is to be sought, though strong chest-muscles are also valuable for forced respiration.

Should our correspondent or his companions desire instruction regarding any of the special branches of athletics, I shall advise them to endeavor to gain such from those who are experts in the respective departments; the aim of this article has been to give general information that would be of service in indicating a safe and improving course of physical training. However, the afore-mentioned article of two years ago may contain some points that will be of benefit to those who wish to attempt foot- or

bicycle-racing, and for such the following excerpt will not be out of place :

The secret of successful training is to conserve all energy possible, and then to be able to expend it at the supreme moment when every pound of force is needed to win. Once this is thoroughly understood, there should be no mystery or doubt as to what one ought to do in any particular case. But it is not sufficient to store up muscular energy alone ; more important, even, than this is the development of one's nerve force and will. It is comparatively easy, if sufficient time be given, to harden and strengthen the necessary muscles for any reasonable task, but to be able to control one's self so as to subdue all trepidation on the one hand and undue ambition on the other, to have both body and mind completely under the mastery of the will, and to be calm and to know what himself and his opponents are doing in the excitement of a race is far more difficult, and something not easily acquired. A person with a highly nervous and excitable temperament, therefore, will have to discipline himself more severely than one who is equable and phlegmatic, though the former may be more successful in the actual contest from his greater ability to summon all his power to his assistance at the critical moment.

In conclusion, though it has given me pleasure to make this attempt to satisfy the wishes of our correspondent, I must say that I hope and believe that the time is soon coming when it will be unnecessary for him or other high-school students to make such inquiries, since in these and other schools there will be not only fully-equipped gymnasiums, but also thoroughly educated and competent instructors to impart the knowledge about the human frame divine in all its aspects which every intelligent boy or girl should have. It surely will not be long before those in authority will begin to learn that the scholars under their care have a physical as well as mental capital, and that one is as worthy and needful of development under every safeguard as the other.



THE IDEAL FOOT-BALL GAME.

That Deadly Foot-Ball Game.¹

DURING the past year the subject of foot-ball has occupied the attention of all who are in any way interested in athletics to a greater degree than at any previous time. The position which the *Medical Examiner* took in a paper read by the editor before the Boston Life Underwriters' Association, in December, 1893, that the results of strain or other injury may be such as to render the player an unfit subject for insurance, placed the matter in a different light from that which it had previously assumed. Its practical bearing became at once apparent to the individual himself, and to those for whom as a possible husband and father he is bound to provide. It had then, henceforward, not only a sporting and educational, but a physical and vital aspect, and it was seen that there is a commercial side to the question that cannot be thrust aside with impunity.

We find the subject discussed by the daily and other newspapers, who also chronicle the different movements of the game and its *personnel*, including the mishaps connected therewith; by the medical press, whose editors, being physicians or surgeons, take a more sober and material view of events connected with the sport; and by writers generally who throw their thoughts in the form of papers more or less pretentious.

In what we have to say in the following remarks we will endeavor to be as impartial as possible and express our honest convictions, as any other course would be unjust to the authors of the very excellent work quoted, and to others who have endeavored to throw light upon the subject. Our remarks will be from an insurance stand-point,—that is, we will endeavor to extract from this work, and other contributions which we have seen, whatever will assist us in our work as underwriters. Is there anything in foot-ball which does now, or will at any future time, render its devotees unfit for insurance?

Let us consider the work referred to, and, in doing so, we will make use of whatever of the material which we have gathered that may be deemed applicable.

"Foot-Ball Facts and Figures" is a compilation by a commit-

¹ From the *Medical Examiner*.

tee of which Mr. Walter Camp was chairman, having been especially requested to act in that capacity by a member of the Harvard Board of Overseers. Associated with him were Rev. Joseph H. Twichell, of Hartford, Conn., a member of the Yale Corporation; Rev. Endicott Peabody, of Groton School, Mass.; Hon. James W. Alexander, of Princeton, Vice-President of the Equitable Life Assurance Society; Hon. Henry E. Howland, of New York; and Robert Bacon, of the Harvard Board of Overseers. The plan of investigation was "to secure an *expression of opinion* (italics ours) from head-masters of schools, members of faculty of colleges, and former captains of foot-ball teams." They have, by way of comparison, included the results of the researches of Dr. Morgan, of Oxford, relating to rowing, and have also secured reports from every player on the Harvard and Yale teams, with one exception, and all but some half a dozen on the Princeton team during eighteen years, being the period in which the game has been recognized as a sport in this country. We notice a table of foot-ball casualties by Dr. Conant in charge of Harvard teams, an abstract of a paper by Henry C. Beyer, M.D., surgeon United States navy, in *American Journal of the Medical Sciences*, September, 1894; Dr. Loveland's investigation; the opinion of the physician to Rugby School; contribution of Drs. White and Wood in *North American Review*, etc.

The various contributors have a great deal to say about the moral aspect of the game, its great benefit to the young man in cultivating courage, endurance, self-control, inculcating obedience to authority, enforcing discipline, and a number of other virtues, all of which are conceded. Almost any course of discipline conducted on a proper basis will result in many of these. The one thing which we desire to know is whether there are any permanent physical injuries which will have an influence upon the future health of the participant. This is important not only to insurance companies, but to the parents or guardians of those who are permitted to engage in this rough game. It seems to us that we should look not to head-masters or professors, or the players themselves, who are presumably mostly non-professionals, but to physicians who are accustomed to look not only upon the surface of the body for evidence of permanent injury, but to organs which are situated within the body whose abnormalities can be discovered by such means and methods as only a trained diagnostician can apply.

We will, therefore, glance at the statements of the medical gentlemen, and the first medical testimony offered is that of Dr. Conant, consisting of a table which includes all serious accidents not only to the 'varsity squad, but to other class teams, as follows :

LIST OF FOOT-BALL INJURIES.

	1890.	1891.	1892.	1893.
Fractures of the nose	9	6	5	4
Dislocation of the shoulder	0	1	0	0
Dislocation of the elbow	0	2	0	1
Injury of the knee-joint with effusion	15	12	10	8
Injury of the knee-joint without effusion	20	16	12	10
Sprains of the ankle	15	16	12	9
Fracture of the metacarpal	4	2	2	3
Fracture of the radius	0	0	0	1
Fracture of the tibia and fibula	0	1	0	0
Teno-synovitis	12	10	8	8
Sprains other than knee and ankle	10	6	8	7
Scalp wounds	4	2	3	3
Injury to shoulder (tackle's shoulder)	6	4	5	4

This same table appears in a paper read by Dr. Conant before the Boston Society of Medical Improvement May 14, 1894, but he there adds another line,—viz., severe contusions, six, seven, five, five,—in the respective years.

The next medical testimony is by Dr. Henry G. Beyer (Johns Hopkins University), United States navy, which first appeared in the *American Journal of the Medical Sciences*, and which refers particularly to the age, height, weight, lung capacity, and total strength of each individual player, and the position which he occupied on the field. His summary is as follows: He obtained, as a result of two months' foot-ball training on the seventeen players examined in 1892: (1) No increase in height; (2) no increase in lung capacity; (3) an average increase of 4.9 per cent. in weight, and (4) an average increase of 16.4 per cent. in total strength. In the twenty-five players examined in the fall of 1893: No increase in height, an average increase of 4.7 per cent. in weight, an average increase of 3.9 per cent. in lung capacity, and an average increase of 14.2 per cent. in total strength. In both series of observations he found a decrease in vital index,—i.e., a simple division of lung capacity by weight.

Speaking of injuries and deaths, he thinks that were all circumstances known connected with these mishaps "all the recorded deaths, without an exception, would be found traceable to gross

carelessness of one kind or another." "Certainly," he continues, "all the injuries produced on the foot-ball field in games played between gentlemanly and well-matched players *that have come under his observation* (italics ours) have been amenable to treatment and have resulted in perfect cure."

DR. LOVELAND'S INVESTIGATION.

The doctor says a surgeon would probably decide against the game, but his statistics are too meagre in several ways to warrant any positive conclusion. They were not expected to be, but he hoped that they would lead to other investigations. However, this is what he says,—

Obtaining the addresses of 250 players of Yale, Harvard, Princeton, and Wesleyan, 1881-90 (a few were substitutes), I sent them circular letters of inquiry.

About 75 per cent. of the men promptly responded.

I selected the players of the last decade because I wished to reach those who had been out of the sport long enough to get over any transitory effects of the game, and also to get at men who had been out in the world long enough to be able to give a fairly unprejudiced report of their condition.

It must, of course, be remembered that the game of to-day is not that of five and ten years ago. But, in some respects, the older game was the rougher, with its bull-dog fights, *alias* "maul in goal," and its slugging and throttling pleasantries. Moreover, the sharp concussion and violent falls of individual players in tackling one another have always formed a prominent feature of the game, just as they do to-day. And "mass plays," although not quite so "mass"-ive and under other names, have always been played, excepting, perhaps, the first few years of the eighties.

The first question was to me the most important. My chief object was to ascertain how many of the injuries I was seeing as physician of a foot-ball association remained extant in the after-life of a player. Moreover, I have heard it claimed that foot-ball players would remember the sport in after-years by the weaknesses that would crop out. Incidentally, I hoped to learn something along this line.

Of the 187 men replying, thirty-nine, or a little over 20 per cent., reported some permanent injury. The injuries, of course, varied greatly in severity, and seemed to have greater significance

if classed into (*a*) those seriously inconvenient and (*b*) those slightly inconvenient or disfiguring. An example of (*a*) is a loose ligament in the knee-joint; of (*b*) an enlarged finger-joint or a broken nose. Eighteen, or nine and a fraction per cent., were in the first class, and twenty-one, or eleven and a fraction per cent., in the second class. Wesleyan raised the percentage somewhat. Yale, Harvard, and Princeton together had a percentage of eight and a fraction, while Wesleyan's ran up to nearly thirteen. This raised a question. Wesleyan has only 200 men to pick from, and therefore puts men in the field who are inferior in muscular physique to the representatives of larger colleges. Again, she has played these men not alone against their equals of other small colleges, but often against those superior to them in weight and strength. Is her larger number of casualties due to these facts?

I have classified the injuries according to their location on the body.

CLASS A. INJURIES BELOW THE KNEE.

Sprained ankles	31
Sprained foot	1
Broken leg	3
Broken leg, "small bone"	2
Rupture of tendon of leg	1
Rupture of blood-vessel of leg	3
Flesh wounds of shin	4
Strain of leg	2
	—
Total	47

CLASS B. INJURIES OF KNEE.

Strain of knee	18
Water on knee	5
Dislocated knee	2
Dislocated patella	1
Fracture of cartilage of knee	1
	—
Total	27

CLASS C. INJURIES OF THIGH.

Strain of thigh muscles	7
Bruise of groin	1
	—
Total	8

Classes A, B, and C contain eighty-two injuries. Thus a majority of all injuries reported were inflicted on the lower extremities. The ankle fares the worst, with the knee-joint a close second. I feel sure that sprained ankles must be less numerous at present, owing to the admirable ankle-guards that are now in vogue. Shin-guards also must do away with flesh wounds of the shin, of which four are reported. The same guards must also, by distributing along the leg the force of blows, save some broken legs. The knee is still unprotected. It is impossible to shield it by any kind of sufficient guard that will not interfere with motion. Padding does much good, but cannot protect from the severe wrenches which are so common. Water on the knee must be more common than reported above. Most any player has himself seen more than five cases. Under strain of knee I have classed all sorts of wrenches of more or less severity. The following is an important item. Nine, or one-half of the men replied yes to the first question and were classed as seriously inconvenienced, were suffering from injured knees. No foot-ball rules can protect the knee. The ingenuity of the surgeon in supplying protective apparatus must come to the rescue if the knee is to be saved.

CLASS D. INJURIES OF TRUNK.

Fracture of sternum	1
Fracture of ribs	3
Bruised breast-bone	1
Internal injuries	1
Kick in back	2
Kick in abdomen	1
Intercostal muscles torn	1
Floating ribs separated	1
Dislocation of clavicle from sternum	1
Strain of back	4
<hr/>	
Total	16

CLASS E. INJURIES OF UPPER EXTREMITY.

Broken scapula	3
Broken clavicle	3
Sprain of shoulder	3
Sprain of elbow	1
Sprain of wrist	3
Rupture of wrist tendon	1
"Broken hand"	1
Dislocated thumb	1

Broken thumb	I
Broken finger	2
Dislocated finger	I
Thumb-joints enlarged	I
Finger-joints enlarged	I
<hr/>	
Total	22

CLASS F. INJURIES OF HEAD.

Concussion of brain	2
Blow of head	I
Kick in head	I
Broken nose	II
Scraped nose	I
Broken cheek-bone	I
Incised wounds of face	6
Broken teeth	I
Loosened teeth	I
Black eye	I
Ear torn	I
Ear-drum ruptured	I
<hr/>	
Total	28

The nose "gets there" before the player, and, as we should expect, is the most punished part of the head. However, broken noses are things of the past since the ferocious nose-beak has been worn.

If we reckon the sprained ankles, flesh wounds of skin, rupture of blood-vessels of leg, broken noses, and scraped noses as preventable by apparatus, we have a total of fifty injuries, or just one-third of those reported. This is a fair estimate, as we have left out "broken legs," which must be much guarded against by a proper shin-guard.

Doubtless many men have been overtrained to their knowledge, but without appreciable injury. Overtraining has been of several kinds,—of the stomach, of the muscular system (including the heart), and of the general system. Some have claimed that the last variety occurs when men are allowed to play too many years. Overtraining of all kinds is being rapidly eliminated in these days, and does not present the most serious aspect of the subject of foot-ball. Of the 187 replying, 11 said they were overtrained, 3 were doubtful, and 3 omitted to answer the question. The 11 overtrained in the following ways: One always felt tired while training, except during a game; 2 specified indi-

gestion ; 1 found it difficult to accustom himself to a sedentary life after leaving college ; 1 had muscular twitchings in his legs when walking for four years after leaving college. Of the 11, 7 specified their difficulty as temporary. As stated above, probably different answers would have been sent if overtraining without injury had been the subject of the question. To about one-half the circulars I appended the question, " Did you gain weight while training?" It occurred to me after having sent out the first half that the fact that a man gained weight while training would be pretty clear evidence that he has not overtrained, although this would prove nothing negatively, as a man could lose weight in many instances without being overtrained. Of 90 men, 47 gained ; 9 did not lose ; 4 lost at first and gained later ; 2 lost fat ; 1 lost if worried ; 11 lost ; of the 11 one-half gained after the season ended. So that, on the theory of weight, 62 at least out of 90 did not overtrain.

Of the 187, 179 reported a good effect on the general health. Many took occasion to be very emphatic ; 5 were uncertain ; 1 saw no effect, 1 saw no harmful results, 1 thought the effect was bad, but in connection with too much other athletic and college work. Question IV, Physical development ; 180 returned a good effect ; 3 saw no effect ; 2 were doubtful ; 2 couldn't separate the effect from that of other sports. I did not ask for specifications as to the parts developed, but of those that specified voluntarily by far the larger number reported a general development. Quite a number were impressed with their chest improvement.

It must be remembered that these statistics are based upon the replies to a circular. The replies are in the nature of opinions of the parties of themselves, based upon self-examination, or what may be called " auto-diagnosis."

Dr. Clement Dukes, physician to Rugby School, admits that accidents do happen at foot-ball under " Rugby rules" among the older men. The man who is unwise enough to think that because he has been the best player at school he can always play hard without previous and prolonged training is sure to meet with accidents. He is in favor of the game.

Drs. White and Wood say, " About this time last year the question of the occurrence of fatal or of permanently disabling injury to any foot-ball player at these four institutions (Harvard, Yale, Princeton, and Pennsylvania) for the previous decade was submitted by one of the writers to the special authority on the

subject in each faculty. The replies, still in his possession, were sent after careful investigation, and established conclusively the fact that no instance of any permanent injury to a player had occurred in all the long series of contests waged during those ten years on the foot-ball field. We ask that until contradictory and well-sustained evidence be brought forward this statement be accepted on the authority of Dr. Sargent, of Cambridge, Dr. Seaver, of New Haven, Dr. Macdonald, of Princeton, and Dr. White, of Philadelphia. We may add that Dr. Hitchcock has written us that no player has ever suffered permanent injury at Cornell. We know that so far as intercollegiate foot-ball among these universities is concerned, the foregoing is true of 1893 also, and we think this fact greatly lessens the force of the objection based on the physical dangers of the game."

(TO BE CONTINUED.)

Why Altitude is the Treatment for Phthisis.

BY E. P. HERSHEY, C.E., M.D.,

Denver, Col.

LAST October, I read before the Denver and Arapahoe Medical Society a paper on "The Treatment of Phthisis,"¹ in which an effort was made to prove that little or nothing had as yet been accomplished, by means of therapeutics, in the treatment of this disease. The statistics as therein set forth clearly indicate no other treatment than that provided by climate influences. The percentages of fatalities were as follows: Of ninety-two cases treated from two to five years before coming to Colorado, $66\frac{5}{9}$ per cent.; of those treated from three months to one year, $19\frac{1}{4}$ per cent.; and of ninety-seven of those who received no treatment before coming here, the small percentage of $5\frac{7}{9}$. The word "treatment" refers exclusively to the use of drugs directed to the diseased organ, and to all alleged methods of cure from the administration of creosote to the use of the hypodermic syringe, and includes every known apparatus for inhalation, so promising at the start and so short-lived. The whole method of treatment is

¹ Medical Record, December 23, 1893.

limited to residence at high altitudes, proper food, and attention only to those organs which, becoming deranged, come within the scope of our knowledge, such as the alimentary and circulatory systems.

It would occupy longer time than is allotted to this paper to discuss the various treatments, and to demonstrate the damage they have done. The object is more to emphasize the curative effects of climate, not by condemning all therapeutic agents for the treatment of tuberculosis, but rather by upholding nature's remedy, by endeavoring to satisfactorily explain why altitude is beneficial in this disease.

Theorizing has given birth to many speculative cures for phthisis. Practically, none have been found. The deadly war waged against the tubercle bacilli, after they have become an adjunct to the disease, has met with signal defeat, leaving us just where we were centuries ago. All the mechanical contrivances made to conquer the disease have been relegated to the past. Hygiene stands alone in the home treatment of this serious affection, and a dry, rarefied air, if resorted to in early stages of the disease, is, as yet, the only known means of cure. In what manner residence at high altitude, combined with other climatic advantages, cures phthisis cannot therefore fail to excite interest.

It would, of course, be impossible to afford complete rest to the diseased lung. Yet, in this disease, we have all the elements of a low grade of inflammation. It is not erroneous to say that in tuberculosis are found the same results of inflammation as occur in any portion of the body, modified or increased only by the character of the tissue involved. Should the healing process conquer early, it may leave the part normal, and leave cicatrices, if there be a loss of tissue. If, on the contrary, the inflammatory process continues, we have an embryonic condition soon converted into pus, this being more rapid in its destruction if contaminated by bacilli. Phthisis is more a form of *inflammatio debilis*, requiring stimulation rather than sedative treatment, demanding for its cure a lessening of the work-force upon the inflamed tissue, and an increased blood-supply to the part.

To the surgeon meeting with a case of inflammation of this character, the method of treatment pursued is rest, increased vascular supply to the part, and proper nutrition. With little or no faith in drugs other than those acting as general tonics, he places

the patient under regular *régime*, limiting his nourishment to those foods which are the easiest to digest and the most readily assimilated. With reference to rest, the surgeon seeks as much quiet for the affected part as is consistent with the general health of the patient. Experience has taught us the value of the surgeon's method in the treatment of typhoid fever,—keeping the bowels as quiet as will allow of proper nourishment. It does seem plausible, then, that having a fibrocellular tissue inflamed, as we have in phthisis, we shall be better able to conquer the disease according to the exactitude with which we adhere to three principles of surgery,—to wit, *rest, increased blood-supply to the part, and proper nutrition.*

Loomis, in his recent article on "The Dietetic Treatment of Phthisis,"¹ sets forth the importance that is being attached to nourishment in the treatment of this disease, claiming that "climate is of little avail without recourse to the highest possible degree of nutrition." Proper nutrition is undoubtedly important, but it is not paramount, as this author claims.² A review of recorded cases will show phthisis originating among those who have been well supplied with nourishment and all the comforts that wealth can bestow, whereas few of our physicians deny the fact that *many cases recover from early phthisis subsisting on the unavoidably coarse food provided on Colorado ranches.* Good food is but an adjunct in the treatment of phthisis.

For the other two methods of treatment in chronic inflammation,—namely, increased vascularity and rest,—we have a difficult problem to solve when we attempt to apply them to the lung-structure. This, however, may be done if we have the means of diminishing the work-force upon the fibro-elastic tissue about the alveoli. Any increase in the capillary circulation within this tissue should necessarily diminish the air capacity of the alveoli, through the expansion of the intermediate tissue, and, conversely, a diminution in the capacity of the alveoli would afford increased space between them, and freer circulation. To be able to bring about this condition, an atmosphere of less density than that of the sea-level would be required. Let us admit that a fixed amount

¹ Medical Record, March 24, 1894.

² It seems impossible to believe that forced feeding can have a salutary effect in any disease, and yet such has been strongly advocated. When the alimentary canal can scarcely assimilate the small amount it takes to appease a poor appetite, what shall be the result of forced feeding? A tempting meal may be an excellent stimulant to the appetite at times, but it becomes nauseating when duty compels the patient to swallow it.

of oxygen is required by the blood. It is apparent that a proportion exists between the density of the air and the oxygen it contains at various differences of level. For instance, at sea-level there are 130.4 grains of oxygen to the cubic foot; at 5000 feet there are but 108.6 grains; the pressure of the former being about fifteen pounds to the square inch, at the latter about 11.83 pounds; from which we ascertain that the density at sea-level is to the density at an elevation of 5000 feet as the amount of oxygen in the former is to that in the latter, approximately a loss of one-fifth in density, and the same loss in oxygen. The following table¹ may aid us in calculating the actual loss of oxygen:

Total capacity of the lungs, 5300 c.c.	Breathing or vital capacity, 3700 c.c.	Complemental air, 1600 c.c. Breathing or tidal air, 500 c.c. Reserve air, 1600 c.c.	Stationary air, 3200 c.c.
	Residual air, 1600 c.c.	Collapse air, 800 c.c. Minimal air, 800 c.c.	

The stationary air from which blood obtains its oxygen, amounting to 3200 cubic centimetres, or 95.28 cubic inches, diminishes in proportion to its density, so that four-fifths of 95.28 cubic inches, or 76.22 cubic inches, represents the stationary air at an altitude of 5000 feet, involving a loss of 19.06 cubic inches. The ratio of nitrogen to oxygen as 79 : 21 remains fixed at all elevations. There is an actual loss of 5.07 cubic inches of oxygen. The normal amount of carbonic acid gas (CO_2) contained in the air at sea-level is $\frac{4}{100}$ per cent., the ratio diminishing in value more rapidly in proportion to the volume of air as the altitude increases, so that at an elevation of 5000 feet the CO_2 is less than $\frac{2}{100}$ per cent. A less amount of air is sufficient to satisfy the economy, if there be a decided diminution in the amount of CO_2 and other impurities of the air. At an altitude of 5000 feet there is an approximate reduction of one-fifth in the amount of oxygen present, but a reduction of more than one-half of CO_2 , the latter more than compensating for the loss of the former. We therefore lose nothing in the quality of the air for purposes of breathing. The prevalent idea that those living at an altitude of 5000 feet are compelled to breathe five-fourths faster than those residing at

¹ Gage on Respiration.

sea-level,¹ has no foundation in fact. That the rarefied air at an altitude of 5000 feet is compensated for by its purity is well illustrated by the activity of the pulse and the increase in the number of respirations when the subject is compelled to breathe an atmosphere slightly vitiated with CO_2 , improper ventilation being more noticeable at such elevation than at lower altitudes.² Indeed, impurities, no matter what may be their nature, occur in far greater quantities at low altitudes, and remain as a source of contamination for a longer period than at elevations of a few thousand feet, and, too, particles of impurity are more readily suspended in the air through the medium of moisture, where humidity is generally marked, than they are in a dry atmosphere, so that, on the whole, the purity of the surrounding atmosphere at an elevation of 5000 feet enables us much more readily to oxygenate the blood.

Losing nothing, then, by inhaling dry, rarefied air, let us see whether we shall be able to gain anything by breathing it, in attempting to accomplish the other two essentials in the treatment of phthisis,—rest and increased blood-supply to the parts. The vital capacity of the lungs increases from fifteen to thirty-five years of age, and decreases after that time; and, too, the liability to phthisis is greater between these periods, or, the greater the work-force required of the lung-tissue the greater the difficulty of overcoming abnormal changes.

Knowing, as we do, that each alveolus is surrounded by a capillary plexus, held in position by means of a transparent, structureless membrane containing many elastic fibres, the freedom of circulation through the capillaries must be indirectly proportional to the resistance caused by the dilatation of the alveoli, the resistance is caused by the distention of the alveoli, and the distention is directly proportional to the density of the air within the sac.

In calculating the work-force upon the lung-tissue, we have only to consider the breathing or vital capacity, 3700 cubic centimetres. Whatever may be the density of the atmosphere which surrounds us, that contained in the lungs must sooner or later be the same. Assuming that the chest capacity remains the same,

¹ Extended observations on a large number of subjects at an elevation of over 5000 feet give the number of respirations per minute the same as at sea-level, averaging 16 to 21.

² Those who have spent a few hours in the Mammoth Cave of Kentucky cannot fail to mark the oppressiveness of the air when they make their exit from the pure air of the cavern. Such a difference cannot be noticed when emerging from similar caves in Colorado, although the air in these caverns is as pure as that in Mammoth Cave.

and that (contrary to the general belief) we have the same number of respirations per minute at an elevation of 5000 feet that we have at sea-level, the diminished density of the air to four-fifths at 5000 feet will diminish the expansion of the alveoli one-fifth, permitting freer circulation and greater supply of blood. The air passing through the bronchial tubes into the infundibula expands into the alveoli with a tension upon the walls of the alveoli proportional to its density, and is momentarily retained there through the agency of a thick bundle of annular, muscular, fibre-cell sphincters.¹ Upon the relaxation of the muscles of respiration the fibro-elastic walls of the alveoli contract by virtue of their elasticity. To force the air through these fine apertures, the work-force thrown upon the tissue must be directly proportional to the density of the air within the sac. The air at an elevation of 5000 feet, being reduced one-fifth in density, affords a corresponding reduction of one-fifth of the work-force upon the walls of the alveoli. When we take into consideration that the air-cells of the lungs aggregate from 1700 to 1800 millions, representing a surface equivalent to 200 square meters,² a gain of one-fifth in the reduction of the work-force is a consideration of no small moment.³ A reduction of work-force means rest, and to afford rest means assistance to nature in the restoration of the diseased organ.

And what about the irritability of the heart so frequently met with by those who first go to a high altitude? The rapidity of the movement of the heart is indirectly proportional to the amount of resistance to the flow of blood through the vessels. Every one is subject to this increased activity of the heart⁴ upon changing suddenly from a low to a high altitude. The rapid relaxation of the pulmonary vessels reduces the pressure upon the heart, thereby increasing the rapidity of its action until the vasomotor system brings about that happy balance, to do which nature is always ready.⁵ Increased activity of the heart can almost always be

¹ Hirschmann and Virchow's Archiv, 1886, p. 355.

² Kuss.

³ The air breathed at an altitude of 5000 feet is so much rarer when it enters the lung that the heat of the body does not expand it so much as at sea-level. The work therefore performed by the lungs, in counteracting expansion and expulsion of the air, is considerably modified. The exact amount of work-force saved requires such careful observation and calculation, that exact figures, etc., will be obtained for a future paper.

⁴ Hirschmann and Virchow's Archiv, 1886, p. 355.

⁵ In a normal condition of the arteries the relaxation of the pulmonary vessels has but a transitory effect upon the heart. If the arterial tension is low, the degree of irritability becomes quite pronounced. For this reason patients whose condition has advanced to such a stage as to lower the tensivity of the vessels should not be sent to Colorado.

avoided by a gradual ascent, the slow change allowing compensatory action to take place throughout the circulatory system. The importance of avoiding exertion when first arriving at a high elevation cannot be too strongly emphasized,¹ but with those in whom the disease has not become far advanced, this is most difficult to follow. Here again, however, nature asserts herself. The patient finds that instead of the few hours' restless slumber he had at home, he enjoys long, quiet hours of sleep, and the slow-measured breathing proves plainly that the pure, rarefied air is giving to the diseased organ the rest which was so needed. It is at this time that the increased blood-supply to the lungs promotes active tissue nutrition, the blood more willingly giving up its waste products and absorbing its required oxygen, thus stimulating every eliminating organ in the body to renewed activity. What greater result can we seek to gain in any case of *inflammatio debilis*?

The breathing of dry, rarefied air as a cure for phthisis was an accidental discovery. Neither the altitude, the dryness of the atmosphere, nor the rarefied air can be individually set forth as the healing factor in this disease. At high altitudes along the coast the air is laden with moisture, thus depriving it of its purity,—the same with all altitudes within the rain belt. The dry air of the desert is more than harmful to the disease, and the various apparatuses contrived to lessen the density of the air show what poor results are obtained from rarefied air alone. Combined, however, they accomplish all that may be desired. With all this in view, it seems as though, when the clinician searches for a treatment of the fell disease which for centuries has baffled the skill of the leading men in our profession, residence at high inland altitude must commend itself.

Physicians have been heard to assert that all the patients they have sent to Colorado have returned to their homes to die. Let us trace the history of these cases as we know them here. Taking a typical case, let us follow the usual method of procedure. Some five or six years ago the patient suffered with dry, hacking cough, with slight infiltration of one of the apices. Treatment: counter-irritation by means of pustulating fluids of various kinds; inhalations of everything from compressed air to the creosote spray. At the end of six months to two years condition much

¹ Clinical observations bear out this fact, many patients losing rapidly by not observing this important rule.

worse. Second stage: general therapeutic measures for fever and night-sweats; condition still unimproved. Last stage (Colorado): condition much worse; patient rapidly sinks; death. Is it to be marvelled at that patients return to their homes to die? Reverse this treatment and the patient will never know the last two stages. *Patients sent to Colorado in the early progress of the disease get well.*

The great drawback to the climatic treatment of phthisis is the feeling of exile that takes possession of the patient. Unhappily the physician sympathizes with him in this, and together they struggle against the inevitable progress of the disease, only when too late to resort to what might have proved a successful treatment. The term exile has been used. Exile to what? Exile to a land of industrious people, who have turned the dry, parched plains into fertile fields! to beautiful cities, supplied with all the comforts and conveniences of modern life, where, among a live, thrifty, and progressive people, business opportunities abound; to a region of magnificent scenery, where nature is presented in her most majestic garb, among towering mountains that rear their snow-capped peaks to the skies; to streams and lakes and parks that afford every delight to the lover of sport and seeker of health; to a climate approaching perfection as near as any can; where the sky is always clear and blue; where fog or dampness is unknown; where rain and storm are rarely met; where the sun shines resplendent nearly every day in the year, and the moon and the stars light up the heavens with a singular brightness by night; where the winters are mild and the summer heat never oppressive; where every inhalation of the pure, dry air fills the sufferer with fresh hope, strength, and courage; where the certainty of an early grave is exchanged for the assurance of a renewed lease of life among happy and delightful surroundings. *Concursus omnium bonorum.*

Prohibiting Infant and Child Life-Insurance.

The Memphis Board of Health has sent a communication to the Tennessee State Board of Health, calling for such action as will lead to legislation prohibiting infant and child life-insurance within the State, on the ground that the practice leads to criminal negligence of the proper care of children, and is to that extent prejudicial to public health.

Advisability of Vaccination During the Existence of a Skin Eruption.

BY J. ABBOTT CANTRELL, M.D.,

Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine; Dermatologist to the Philadelphia Hospital and to the Southern Dispensary, Philadelphia.

AS to the advisability of vaccinating a person during the course of an eruption of the skin having been frequently in evidence, I take the opportunity at the present time to make answer through the medium of your journal. Within the past few months the question certainly has arisen more than at any other time, owing to the apparent fear that we would be visited by an outbreak of variola. It is certain that the patients themselves often fear vaccination during the existence of the skin condition, because of the danger of making their feelings worse than they have been with the cutaneous manifestation. While this is to a certain extent well founded, I do not think any one will be afraid when they are aware that no danger to life will intervene. Within the past few days the question has been asked by the parent of a child having psoriasis, he stating that wherever the child was bruised he would be confronted with a new psoriasis lesion in a few days. Naturally one would hesitate before giving a positive opinion in such a case, on account of the supposed idea that psoriasis often occurs after wounds of any character. Having been asked an opinion in this case I did not hesitate to give the following advice, that I thought it would not be inadvisable to vaccinate. And I cannot hesitate to give the same opinion in cases of any eruption of the skin. I would advise that vaccination be performed in any case of any eruption of the skin.

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EDITORIAL

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COMMUNICATIONS SOLICITED.

We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

Dangerous Bank-Notes.

WE have repeatedly stated that we do not wish to pose as alarmists, yet we must tell the truth about the causes and prevention of diseases, even though this truth may, sometimes, savor of an alarming nature. We would ask those of our readers who can do so to read an article on "Microbes on Bank-Notes" that was published in the New York *World* of March 17.

A reliable New York chemist made a thorough examination of a number of bank-notes, taken at random, and found them loaded with disease-germs of various kinds. A little common sense makes this perfectly plausible: the skin secretes an oily fluid; this, in handling, makes the notes oily and greasy, and to this grease the minute germs, everywhere present, will adhere; this grease is organic matter, and, as such, will afford an excellent medium for the cultivation and reproduction of these germs. The bank-note, to-day in the tenement house, the companion of some loathsome disease, finds its way ere night to the corner grocery or groggery, to-morrow to the bank, and the next day into some cleanly home, as the unsuspected cause of some inexplicable disease that afflicts this household a few days later.

We believe this to be a *real* and not an *imaginary* danger; we have commented upon it before; and we believe that the same danger attaches itself to coin. The more frequent issue of new notes, as has been suggested, would, in a measure, meet this dan-

ger, but we believe that a more effective plan would be an amendment to the National and State banking laws, requiring the maintenance of a steam disinfecting apparatus in every bank or every city, to which all money received by banks should be immediately forwarded for disinfection. The greater portion of our money (both paper and specie) finds its way, every little while, into bank, and if it were thoroughly disinfected on each occasion, an almost infinitely large number of our invisible, yet potent, little enemies would thus have their predatory careers cut short.

The trouble and expense of this procedure would not be great, and the results would fully justify it.

Common Sense versus Fashion.

TO one who reflects, to one who studies, philosophizes, and moralizes, there are presented many curious and incomprehensible problems in humanity, not the least of which is the immensely predominating influence of fashion over common sense.

As we, respectively, understand these two expressions, "common sense" may be defined as the physiological product of a normal mind, and "fashion" as the pathological *impulse* of a mind that has been divorced from nature.

We do not mean to say that all devotees of fashion are mentally diseased (even though we may have a lurking suspicion in this direction); but we do say that, of all animate creation, to *adult* humanity alone is fashion a tyrant, and that the higher we climb in the scale of so-called civilization, the more universal the *superficial* development of the intellectual faculties, the more complete is the mastery of fashion over common sense.

The war between China and Japan, and the willingness on the part of Japan to make terms of peace, make us think of the great masses of humanity as we would of myriads of flies or mosquitoes: who in the summer-time would not make almost any compromise with these annoying pests rather than be obliged to keep constantly killing one, to be attacked by another, and so on indefinitely till cold weather comes to our relief? Japan is a nation of enterprising, cultivated, progressive individuals, great in mental progress, but comparatively insignificant in numbers; China, with its 400,000,000 dull, heavy, stupid, non-progressive people, annoys the intelligence of Japan by the very superiority of the

aggregate weight of the inhabitants of the two countries; as the flies annoy us, so do the Chinese annoy the Japanese; and in like manner do the myriads who are slaves to fashion annoy the few who are possessed of "common sense." "But," says the devotee of fashion, "majorities are always right, hence you must be wrong, because it is only the minority who believe in 'common sense.'" Ah! but it is only the minority of *humanity*; all the rest of animal life knows not even the meaning of fashion, and it has been so with humanity only since humanity has been divorced from nature; it is an unnatural alliance bred from unnatural yearnings, and ultimating in unnatural results. We do not expect our words against the tyranny of fashion to be received with much favor, for it may be truly said of most of the aggregations of human molecules, that are called men and women, that they would rather be out of the world than out of the fashion, yet there may be some who are not yet quite so firmly bound by the chains of fashion but that a few thoughts such as these may set free to a life of pleasure.

The fashionable person thinks "ready-made" thoughts; the common-sense person thinks for himself; how can it be otherwise? The fashionable person walks and talks, eats and drinks, sleeps and wakes, dresses and undresses, breathes and blows his nose, does everything, in fact, in accord, not with what his mind or his reading or his observation suggests to him as correct, but in accordance with the dictates of fashion.

Many of those who are more or less ruled by fashion are fully aware that many of the things that they do, in obedience to the fiat of fashion, are not based upon common sense; but they are so accustomed to being controlled by impulse and have left so undeveloped the germ of self-control within them, that they seem unable to resist the doing of that which they see others about them doing.

Each individual unit of humanity is, in itself, a completed organism, capable, under the influence of suitable environment, of self-development into almost anything less than divinity; but few recognize this fact. In times gone by, when but few were educated and the ignorant masses blindly followed the educated few, there was no necessity for a recognition of this fact; but, in these days of universal education, it is imperative that each individual should learn to regard himself not simply as an atom of humanity, but as an intelligently combined and arranged group

of atoms, forming in himself an individuality capable of much, and in a measure and to a degree responsible for the future of humanity.

Now, the goddess Hygeia was not a devotee of fashion; she was endowed with common sense and did her own thinking; consequently when she saw her old father, Æsculapius, calmly waiting until humanity made itself sick and then trying to cure it, she (doing her own thinking, mind you) wondered why people were so foolish as to make themselves sick and then fuss about getting well; she wondered why they did not try as hard to *keep* well as they did to *get* well. Had she been a slave of fashion, she would have followed in the footsteps of her master; she would not have thought for herself; these original and beneficent reflections would not have found birth in her enslaved mind, and we would all still be "locking the stable door after the horse is gone."

Hygiene demands one of two conditions: a blind obedience on the part of the many to the teachings of common sense on the part of the few, or a development of common sense on the part of the many, and without one or the other of these conditions disease and premature death will continue indefinitely to afflict those who have not the moral courage to break the enslaving chains of fashion.

Difference in Training.

A distinguished lady of wealth and influence, noted for model specimens of children, was asked by a friend and mother, "Why are my children sickly and croupy, and yours always free from such conditions?" The reply was, "You rear your children in-doors, I mine out; yours are educated to be waited on by your servants, I discipline mine to wait upon themselves; my children are early to bed, you give parties for yours with late hours, and allow them to attend parties and keep late hours from home, fashionably dressed; my children have plain wholesome food, adapted to their years, yours eat sweetmeats, rich and highly-seasoned dishes, and are overfed generally; I teach mine to love nature and to feel that there is nothing arrayed so finely as the lily of the field, the bees, and the butterflies; that there is nothing so mean as a lie, nor anything so miserable as disobedience; that it is a disgrace to be sick, and that good health, good teeth, and good temper come from plain food, proper clothing, plenty of sleep, and being good."—*The Medical Age*.



Electric Sunstroke.

The phenomenon known as "electric sunstroke" is now attracting special attention, by reason of its frequency among workmen employed in melting metals by means of the electric process. The intense voltaic arc between the carbon and the metal to be melted emits rays, producing a sensation similar to that of a burn on uncovered portions of the body. There is frequently great pain, sleeplessness, and in some cases fever. The skin becomes copper-colored or bronzed, the eyesight is sometimes temporarily lost and followed by what is known as yellow vision, with a sensation as of sand under the eyelids. The most effective remedy is perfect rest in a subdued light, which causes the symptoms to subside in a few days, the copper skin peeling off, and the patient regaining his old condition of sight and health.

Take Time to Eat.

The opinion that hurry in eating is a prolific cause of dyspepsia is founded on common observation. The ill results of "bolting" the food have been attributed to the lack of thorough mastication, and to the incomplete action of the saliva upon the food. Two-thirds of the food which we eat is starch, and starch cannot be utilized in the system as food until it has been converted into sugar, and this change is principally effected by the saliva. But there is a third reason why rapidity of eating interferes with digestion. The presence of the salivary secretion in the stomach acts as a stimulus to the secretion of the gastric juice. Irrespective of the mechanical function of the teeth, food which goes into the stomach incompletely mingled with saliva passes slowly and imperfectly through the process of stomach digestion. Therefore, as a sanitary maxim of no mean value, teach the children to eat slowly,—and in giving this instruction by example, the teacher as well as the pupil may receive a benefit.—*Sanitary Inspector.*

To Practise Deep Breathing.

(1) Stand erect, the feet separated, the right slightly in advance. (2) Shoulders and head in natural position. (3) Hands lying lightly on the abdomen, the fingers pointing to the umbilicus. Compliance with this rule enables the child to be sure she is using the abdominal as well as the pectoral muscles in respiration. (4) Empty the lungs of air, then close the mouth. (5) Inhale slowly through the nostrils, using abdominal as well as chest muscles. The lungs thus receive the utmost possible amount of pure oxygen and muscles have exercise. (6) Hold the breath as long as possible, and meanwhile use the ordinary calisthenic exercises. (7) Never exercise except with the chest well expanded with air. (8) Exhale slowly, enunciating the vowel sounds as the air passes the lips.

Sudden Death on the Bicycle.

M. L. H. Petit reported three cases of sudden death following the use of the bicycle, all in persons suffering from heart-disease. The first case was that of a man of 60 years, robust in physique, who had practised with his teacher for a month, and who, during a lesson, feeling indisposed, called the teacher and died in his arms. The second case was that of a physician, who wished to reduce his size by bicycle riding. He had never had any heart trouble. At the end of several months he was attacked with dyspnoea and excessive pain in the heart. He descended from his machine, seated himself on a bench, and died shortly after. The third case was that of a clubman, about 40 years old, who died on his bicycle on one of the streets of Paris. He also had heart-disease.

From January 1 to August 27, the Prefecture of Police issued 32,996 permits for the use of the bicycle. As many persons do not apply for permits until compelled to do so, it may be said that there are about 100,000 persons in Paris who use the velocipede. It is probably not an exaggeration to estimate that of this number 1 in each 1000 suffers from some heart trouble, and it is therefore well to call attention to the risks which they run in this sport.

Old age in itself, according to M. Petit, should be regarded as a contra-indication, without any reference to heart-disease. The use of the bicycle requires a suppleness, an attention, and an expense of strength which cannot be permitted to elderly persons without fear of bad results.—*Gazette des Hôpitaux*.

Is Marriage a Failure?

The *Census Bulletin* recently published gives the first official data on conjugal life in the United States. It shows that almost three-fifths of our entire population are single, a little more than one-third married, and not quite one-twentieth widowed. The divorces constitute a small fraction of one per cent. The proportion of widows is nearly three times as great as of widowers, indicating that a greater number of widowers remarry than widows, while figures show that divorced men have remarried to a greater extent than divorced women. The fact that women are, at an earlier age than men, prepared to try the mysteries of matrimony is also proved by the statistics, for while there were only twenty-three males under the age of 15 who were married, the number of married females under this age was 1411.—*Kansas City Medical Record*.

The Cart before the Horse.

In a paper read at the late meeting of the American Public Health Association, by Dr. Benjamin Lee, secretary of the State Board of Health of Pennsylvania, the aim of which was to illustrate the error of putting in public water-supplies without adequate provisions for carrying away the increased liquid wastes, the following example was cited: "In one of the most beautiful of the suburbs of Philadelphia resided a gentleman whose business took him to the city every day. The situation of the house was delightful, the drainage of the neighborhood good, the water pure. Every prospect pleased, and only man was vile. Next his place, and on higher ground, was a comfortable mansion on a comparatively small plot of ground. The owner of this mansion saw an opportunity for turning it to profitable account by renting it as a summer boarding-house. Its situation was attractive, and the old house was soon crowded to overflowing. It was therefore enlarged until it had a capacity for about seventy guests. The old water-supply became insufficient and a new one was introduced affording a flow of 2000 gallons a day. And now came trouble. There was no proper provision for this flood. Fresh drains were dug all over the little lot, but they were insufficient to carry it off. Flowing into the public road in front of our friend's house, and even upon his property, it quickly constituted a nuisance of a very serious character. The State Board of Health was appealed to,

and, as the neighborhood, although quite populous, was without incorporated rights or local health authorities, considered it to be its duty to interfere. The effluent was carried under the surface to an old sewer at a distance and the trouble temporarily remedied, although by no means satisfactorily and permanently. But now comes a curious part of the story. The engineer-inspector did not consider his full duty performed until he had also examined the drainage on the property of the complainant. This gentleman had prided himself on the perfection of his 'sanitary' arrangements, and yet all of his drainage was received into a leaching cesspool which was close to the house and evidently constituted a serious menace to the health of his own family.

"The object of this paper may be briefly embodied in the following propositions :

"*First.* Copious water-supplies with the aid of what is known as modern plumbing constitute a means of distributing fæcal pollution over immense areas through the soil, through subterranean water-courses, and in surface streams, and cannot, therefore, be regarded with unmixed approbation by the sanitarian.

"*Second.* The question of drainage and sewerage, whether for individual residences or for communities, should always precede that of water-supply ; and no water-closet should ever be allowed to be constructed until provision has been made for the disposition of its effluent in such a manner that it shall not constitute a nuisance prejudicial to the public health."

Dangers of Athletic Sports in Childhood.

M. le Gendre, of Paris, in an article on this subject, showed that the period of growth created certain morbid predispositions, as a tendency to excessive arterial tension, manifested by palpitations, epistaxis, pains in the head ; in arthritic individuals, susceptibility to chill when the body is in a state of perspiration ; in neuro-arthritic persons, a tendency towards atony of the stomach, increased by the abundant ingestion of fluids ; in others, of nervous temperament, a predisposition to headaches, tics, chorea, and a craving for violent distraction.

Under such conditions it is easy to understand how excess in physical exercise may be followed by serious consequences. After violent games of foot-ball, tennis, or the too prolonged use of the bicycle, the fever of over-exertion may supervene, with the

complications that accompany it, as prostration, curvatures, pain, osteomyelitis, dyspepsia with great anorexia, dilatation of the heart, palpitations, syncope, true asystole, and possibly hypertrophy, articular inflammation, or typhlitis.

The author therefore believed it of great importance for parents to have their children examined before allowing them to give themselves up to any particular sport, and to forbid it if there be any trouble of the circulatory, locomotor, digestive, or nervous system; to insist upon progressive and gradual increase of the exercise, whatever it be; and, while encouraging athletics and gymnastics, to forbid any competition in these sports.—*Revue des Maladies de l'Enfance*.

The Bicycle for Women.

The bicycle has become the fashion even for women, and the following wise advice should prove of interest to physicians: Dr. Laura Liebhart, in discussing before the Colorado State Medical Society the question of bicycle exercise for women, declared that "the majority ride with the saddle too low," and that this is responsible for cramping of the chest, straining the back, and impeding full action of the muscles of the leg. There results a constant tension of the muscles above the knee, which gives a short, awkward stroke, as the reach is too short. The seat should be amply high for the entire leg to be extended and give to these muscles a second of relaxation on the downward stroke of the pedal. The knee must have perfect freedom, and in this respect a woman finds herself particularly handicapped, as she is unable to make the entire stroke with the action of the knee limited by a dress skirt. In Paris they do not stop with the unsightly bloomers, but have almost universally adopted the practical, yet far too radical, knickerbockers. This striking costume attracts but a passing notice, for the *rationale* of it all appeals to the French mind; but as we have fortunately not yet reached the Parisian standard, it is to be hoped that knickerbockers will confine themselves to spins in the mountains. Wheelwomen also subject themselves to needless jars by jumping instead of gliding from the wheel. They should be taught to mount and dismount from either side as men are wont to do. Corsets on the wheel, as elsewhere, should be denounced in the strongest terms, although nearly one-half of all wheelwomen tie up their muscles in this bar-

baric fashion. Many condemn cycling on the ground that the movements are identical with those called forth in running a sewing-machine. Machine-running simulates more the faulty way of wheeling, and the position is almost identical with that assumed when the handle-bars and saddle are placed too low. In wheeling there are a greater variety of movements and less tension. Two-thirds of all women who ride wheels foolishly incur great risks by riding during certain periods, even to the extent of hill climbing, when they should never mount a wheel, except for short distances, during the first two days. During the discussion the general opinion seemed to be that the saddles in use were hardly proper. The long, wide saddle suspended between springs was considered very much superior to the rigid or hard models. A saddle much wider throughout was considered desirable, and cases were quoted to substantiate this claim.—*Medical Record*.

How the Source of Infection was Eradicated.

The following from the report of Dr. J. N. Merrill, health officer of Skowhegan, to his town, tells how thorough disinfection eradicated the source of contagion which had for some time kept up a school epidemic of scarlet fever:

“The methods and means employed for disinfection were as follows: All the books used in the building were stood upon the tops of desks and improvised racks, in an opened condition so that fumes of sulphur could penetrate between all the leaves. All the books, charts, and other school utensils having been arranged for fumigation, a large iron kettle containing a little kindling-wood saturated with kerosene was filled with sulphur and placed in a tub containing a pail of water, and set in each room, also a kettle filled in the same way was placed in the basement on either side of the building. The windows and ventilators being tightly closed, the fires were rapidly started, commencing in the upper rooms. The doors were kept closed for twenty-four hours, when the fumes were sufficiently settled to render it safe to enter the rooms and refill the kettles for a second smoking for the same length of time, after which the doors and windows were thrown wide open and the rooms thoroughly aired out.

“All the school furniture and woodwork were next washed in a solution of carbolic acid and corrosive sublimate, and every

book and slate used in the intermediate department, where most of the cases originated, were immersed in a similar solution, and stood upon the desks and racks to dry without injury to the books. Seventy-five pounds of sulphur, one pound of carbolic acid, and one-quarter pound of corrosive sublimate were used. It is hardly necessary to say there have been no new cases reported since.”—*Sanitary Inspector*.

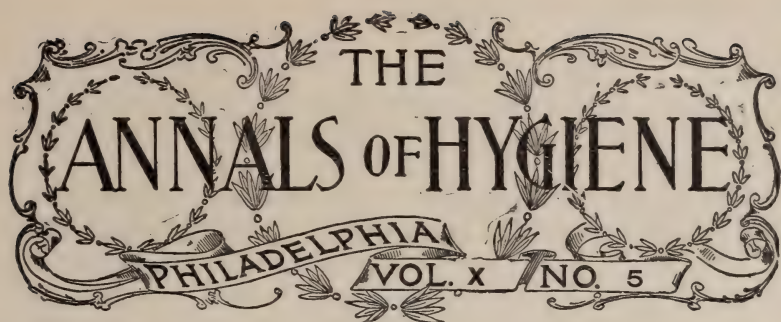


One Hundred Points of Perfection.

It is only a few years since the Pabst Brewing Company's malt extract was first placed on the market. It was introduced as the "Best" Tonic, and through its excellence soon became a general favorite. At the great Columbian Exposition at Chicago, the Pabst Malt Extract was examined by the Government Chemist and the Board of Judges, and the result was the highest flattery that could be bestowed. Of all the host of malt productions they examined, coming both from this country and from Europe, the "Best" Tonic was selected as the only one thought worthy of the highest rank. It was marked with the 100 points of perfection. Such a distinction has never been conferred in the history of expositions. It recognized the Pabst Malt Extract as the head of scientific malt foods, and in advance of the highest previous attainments in the production of malt extracts.

Pulmonary Troubles.

After a practice of nearly thirty years and quite an extensive one in regard to pulmonary troubles, having used all of the emulsions, maltines, and different preparations that are recommended for said troubles, I find TERRALINE one of the most efficient and pleasant preparations that I have ever prescribed.—W. I. MOORE, M.D. Clay, Kentucky, February 8, 1895.



COMMUNICATIONS.

The Nose and its Hygienic Relation to the Body.

BY CARL SEILER, M.D.,
Philadelphia.

SEVERAL years ago I wrote a series of papers on "The Hygiene of the Upper Air-Passages" for THE ANNALS, which seemed to do some good among the lay readers of the journal by the suggestions contained therein. Apropos of these reminiscences I would like to call your attention to an extract from the *Herald of Health*, which appears in the March number of THE ANNALS under the caption of "The Nose and its Hygienic Relation to the Body."

In the main it is an excellent plea (although *as such* merely a reiteration of what I preached years ago) for a daily cleansing of the nasal cavities of their thickened and often dried secretions, dried mainly by the impregnation of particles of dust, which in the natural physiological process of nasal respiration are arrested by the nasal secretions, and thus are prevented from entering and injuring the lower portion of the respiratory tract. Yet, strange to say, not only the general public but also the general medical profession do not appreciate this most important hygienic measure of simple cleanliness as regards the nasal cavities, while both would look with horror and disgust upon an individual who did not wash his face or cleanse his teeth at least once a day, when yet neither the skin of the face nor the teeth and mouth are in anything like as much need of purification as the nose. This

assertion, startling as it may seem, is nevertheless founded upon undisputable facts, which have been demonstrated beyond doubt, or peradventure by physiological and physical science, and by close observation by those of the medical profession best qualified to judge,—namely, the specialists of nose and throat diseases. And these facts are that the surfaces of the nasal chambers in respiration act as a *filter* for the purpose of arresting solid particles floating in the air, so as to purify it before it enters the throat and lungs, by catching them on the viscid mucous covering of the nasal mucous membrane, and also that the civilized method of blowing the nose into a handkerchief, or, as most ladies are in the habit of doing, only wiping the end of the nose with a cobweb-like piece of cambric, embroidered and lace-trimmed, is either but a partially or not at all an adequate means of cleansing the nose, besides being anything but *hygienic* or cleanly. So palpable is this *so-called* refinement of our modern civilization that even the barbaric, semi-civilized Chinaman expresses his disgust in a drastic and epigrammatic (although somewhat ungrammatical pigeon English) manner by saying, “*Melican man dilty man ! Blow nose and put mud in pocket.*”

But besides this most unhygienic, not to say *filthy*, *civilized* method of removing the accumulations of mucus and dust from the nose, which is not only ineffectual but also deleterious to the health of the individual by affording a favorite breeding-place for disease-producing bacteria and bacilli in the pocket of the individual, it is most frequently also the source of disease of the middle ear, as every specialist on diseases of the ear and nose well knows; and for this reason: most persons when blowing the nose into a handkerchief grasp both sides of the nose between the thumb and forefinger, thus closing the nostrils hermetically, force the air contained in the lungs through the posterior nasal cavity with great effort against the occluded nostrils, producing thereby an immense air-pressure within the nasal cavities (anterior as well as posterior), and then, by suddenly removing the external pressure upon the wings of the nose, allow the pent-up air to escape by explosion, with the intention of thus expelling the surplus secretions in the nasal chambers; and this process is repeated, accompanied with more or less noise, several times. But the air thus compressed within the nasal cavities naturally seeks an outlet, and forces its way into the Eustachian tubes, the channels leading from the middle ear to the posterior nasal cavity; and if,

as so frequently is the case, some tenacious mucus should happen to lie within the mouths of the tubes, it is forced into the narrow channels or even into the middle ear cavities during this *civilized* act of blowing the nose, and often gives rise to chronic inflammation of the middle ear by acting as a foreign body, causing ringing of the ears, deafness, and all the other symptoms of this malady.

But what method and what means should be employed for cleansing the nose? Certainly *not* the ones recommended in the extract from the *Herald of Health*, for it is not only exceedingly disagreeable, not to say painful, and therefore unnatural, but also dangerous to the health of the individual by producing inflammation of the nasal mucous membrane and irritation of the sensory nerve-fibres by the low temperature of the water and by the low specific gravity, thus producing nasal catarrh and neuralgias of the face, head, and eyes, and even frequently toothache. The correctness of this assertion is based upon the universal experience of specialists all over the world, every one of whom will bear me out in saying that such a method must be injurious and ineffectual, the latter because no one, and particularly children, will repeat the experiments so disagreeable and painful as sniffing cold plain water up the nose must prove to be to all not suffering from *dry catarrh* (atrophic rhinitis), in which *rare* cases the mucous membrane is almost without sensation and covered with crusts, which cold plain water will, however, not dislodge.

The only rational, effective, painless, non-irritating, and simple method of cleansing the nose is to sniff gently from a small glass or cup a solution of one even teaspoonful of common table salt and one teaspoonful of borax in one pint of water, which solution may be made in larger quantity and kept in a stoppered bottle ready for use on the wash-stand or near it. When it is to be used, four tablespoonfuls (two ounces) of this solution, to which, if desired, some disinfectant, such as carbolic acid, thymol, phenol, etc., may be added in minute quantities, should be warmed to about blood heat (98° F.), poured into the cup or glass, and then by inserting the end of the nose into it and tilting the vessel until the surface of the solution covers the nostrils, it should be drawn through *both* nostrils by gently sniffing until it passes through the nose into the throat, when the vessel is to be removed and the liquid expelled by blowing through *both* nostrils at once *without* the use of a handkerchief or the aid of the fingers. This process is to be repeated until all the warmed portion of the solu-

tion has been used. A still more convenient way, but, of course, more expensive, is to dissolve one of the *antiseptic pastilles* which I devised for this purpose some years ago, in four tablespoonfuls of warm water, and use the resulting solution in the same way.

Nasal douches of *any kind* as atomizers should not be used, as they are either harmful or ineffectual.

1523 CHESTNUT STREET.

"The Cart before the Horse."¹

BY BENJAMIN LEE, A.M., M.D., PH.D.,

Secretary of the State Board of Health of Pennsylvania.



WHEN those who speak the English language desire to characterize a line of thought or of procedure as being in the very highest degree ridiculous and absurd, they make use of the word preposterous, a word which they have had handed down to them from the days of ancient Rome; for the Roman with his strictly logical mind could conceive of nothing more grotesque and idiotic than placing that which should properly and reasonably be "*pre*,"—*before*,—whether in relative position or in sequence of time, "*postera*,"—*behind* or *after*. The Saxon, with his love for the concrete and his fondness for epigram, crystallized the thought into the proverbial expression, "The cart before the horse." I know of no more forcible exemplification of this trite but useful old adage than the absolute reversal which we so constantly find of the appropriate relative positions in point of time of the introduction of water-supplies and the provision of systems of drainage. There were three things which were too wonderful for Solomon, yea, four which he knew not,—"The way of an eagle in the air, the way of a serpent upon a rock, the way of a ship in the midst of the sea, and the way of a man with a maid." Had the wise man lived in our day he would have been tempted to add a fifth cause of wonderment,—the way of a "practical plumber" with the drainage of a house. "Sanitary Plumbing a Specialty." How often does that sign meet the eye! And what is the conception

¹ Read before the American Public Health Association, Montreal, September 25, 1894.

of the practical plumber, who puts it over his door, of sanitary plumbing? Let him be among the most honest and intelligent of his craft, and what thought has he beyond making tight joints and secure traps, and thus preventing the gases of decomposition and putrefaction from finding their way back into the building for which he is providing the water-supply through the lines of his own pipes? How much thought does he give to the ultimate destination of the filth-laden torrents which are discharged from those pipes?

"All the modern improvements." How attractive this announcement looks in the advertisements of suburban residences! And how charming the bath-room appliances appear to the seeker for a healthful home for himself and his little family, not too far from his place of business. The glittering facets, the shining tubs, and the porcelain receivers, the *dulce-domums*, the *dececos*, the cataracts, and all the other variations of the common receptacle. The first thought of the citizen who proposes to build himself a country residence is beauty of location. The second, architectural adornment. The third, possibly, a copious and pure water-supply; and, with this, modern plumbing follows of course as a necessary accompaniment. Last of all, he or his architect bethinks himself that it will be necessary to find a receptacle for this little stream, which he is going to divert from its natural course, and fill with the accumulated filth of his household. That which should have been most carefully considered first, before a line was drawn or a plan designed, is left to be provided last in some hap-hazard way, as if it were a trifling detail of no moment whatever. The problem may prove impossible of satisfactory solution to himself. Or if provision can be made in such a way as to relieve himself of annoyance, the chances are ten to one that his neighbor will begin to complain of the flooding of his yard or the pollution of his well; or, what is still worse, and, unfortunately, of undoubtedly frequent occurrence, sickness may be created in families more remote, the cause of which is unsuspected and therefore unremoved.

As an example out of many which I could cite, the following has recently occurred in my own experience. In one of the most beautiful of the suburbs of Philadelphia resided a gentleman, whose business took him to the city every day. The situation of his house was delightful, the drainage of the neighborhood good, the water pure. Every prospect pleased, and only man was vile.

Next to his place and on higher ground was a comfortable family mansion on a comparatively small plot of ground. The owner of this mansion saw an opportunity for turning it to profitable account by renting it as a summer boarding house. Its situation was attractive, and the old house was soon crowded to overflowing. It was therefore enlarged until it had a capacity for about seventy guests. The old water-supply became insufficient, and a new one was introduced, affording a flow of 2000 gallons a day. And now came trouble. There was no proper provision for this flood. French drains were dug all over the little lot, but they were insufficient to carry it off. Flowing into the public road in front of our friend's house, and even into his property, it quickly constituted a nuisance of a very serious character. The State Board of Health was appealed to, and as the neighborhood, although quite populous, was without incorporated rights or local health authorities, considered it to be its duty to interfere. The effluent was carried under the surface to an old sewer at a distance, and the trouble temporarily remedied, although by no means satisfactorily and permanently. But now comes a curious part of the story. The engineer inspector did not consider his full duty performed until he had also examined the drainage on the property of the complainant. This gentleman had prided himself on the perfection of his "sanitary" arrangements, and yet all of his drainage was received into a leaking cesspool, which was close to the house, and evidently constituted a serious menace to the health of his own family.

The little towns among the hills and mountains of Pennsylvania are peculiarly fortunately situated for the introduction of an abundance of pure water. The municipal authorities of these towns are besieged by water-supply contractors, generally from New England, and therefore having no local interests in the towns, with offers to introduce water on very advantageous terms. The temptation is great, and is often yielded to before a single rod of sewer pipe is laid in the streets. Then the "practical" and "sanitary" plumbers get in their fine work. Every ambitious citizen must have water all over his house with all the modern appliances. The kitchen-water, even though in greatly increased quantity, may pass off over the surface and through the street-gutters. But what shall be done with that discharged from the water-closets? Happy thought! He no longer depends on the old family well for drinking-water, so into that the soil-pipe is

incontinently discharged. So far so good. It does not annoy him. But he does not reflect that the same subterranean stream which supplies his well in all probability supplies those of the entire neighborhood. It can readily be understood how that which should have proved to be an inestimable blessing to the community may thus inadvertently be converted into a terrible calamity. Even in gravelly soils, where opportunity for filtration to a considerable degree exists between neighboring wells, this danger is a most serious one. It will easily be seen how much it is aggravated in limestone regions, where the water courses along underground for great distances almost unobstructed. And yet it is just under these circumstances that the temptation to avail one's self of this so-called natural drainage is the greatest. The object of this paper may be briefly embodied in the two following propositions :

(1) Copious water-supplies, with the aid of what is known as modern plumbing, constitute a means of distributing fecal pollution over immense areas, through the soil, through subterranean water-courses, and in surface streams, and cannot therefore be regarded with unmixed approbation by the sanitarian.

(2) The question of drainage and sewerage, whether for individual residences or for communities, should always precede that of water-supply ; and no water-closet should ever be allowed to be constructed until provision has been made for the disposition of its effluent in such a manner that it shall not constitute a nuisance prejudicial to the public health.

1532 PINE STREET, PHILADELPHIA.

The Effect of Corsets on Monkeys.

If our fair readers will pardon the inferential comparison we would tell of some experiments that have recently been made as to the effect of tight-lacing on monkeys. Female monkeys were put into plaster-of-Paris jackets, to imitate stays, and a tight bandage was put around the waist to imitate a petticoat band. Several of the monkeys died very quickly and all showed signs of injuries resulting from the treatment. Of course, with a human being, generations of use have bred a tolerance, so that while we do not find such immediately fatal results, those who are capable of forming an opinion yet know that the constriction of the vital organs of the body caused by tight lacing is continually working mischief within.

The Truth about Alcohol.

BY LAWRENCE IRWELL, M.A.,

Buffalo, N. Y.



HAVE recently made the acquaintance of an intelligent young lady who has "graduated," or is about "to graduate," as a professional nurse. What this much-abused word "graduate" may mean in the year 1895 I cannot say, more especially as I have lately heard an old gentleman speak of "graduating" as a plumber. But when I was an undergraduate at that "home of dead languages and modern prejudices," still dear to me,—the University of Oxford,—the term graduate meant a person who had obtained a degree from a university. The above-named young lady has been kind enough to inform me that alcohol¹ is "a food and an aid to digestion," and, as this view appears to be taken by a large number of ignorant people, as well as by a goodly sprinkling of dishonest ones, it may be well to place before the readers of the ANNALS OF HYGIENE a complete statement of the facts.

"I covet truth. The gladness of true heroism visits the heart of him who is really competent to say this." I think I may commend this maxim of the late John Tyndall's to quite a number of physicians who profess to believe that alcohol is a valuable article of diet.

My young lady friend (I hope she will allow me to call her a friend) produced, in support of her opinions, a note-book containing notes apparently upon physiology, dietetics, and materia medica all combined, and in this book alcohol is described as a food, because "it creates heat and oxidates tissue." This novel definition of food appears to have been given in some lectures to nurses at a hospital of a small city in the Canadian Province of Ontario, the lecturer being a young gentleman who obtained a medical qualification at the end of 1891. If the rest of his wisdom is upon a par with his reason for regarding alcohol as a food, his university has good cause to be proud of him!

Before plunging in *medias res*, I desire to state two facts,—viz., first, that if the question of the consumption of wine, beer, spirits, etc., were simply a question of their use as drugs, I should

¹ In using the word alcohol in this article I refer, of course, to ethyl-alcohol.

not have one word to say, because I am not a physician, and I know nothing of *materia medica*. But the subject is, in reality, of a physiological character, and concerns not only the biologist, but every intelligent man, woman, and child. Secondly, having been informed that nurses are taught (?) *materia medica* without an attempt being made to teach them any *chemistry whatever*, I denounce such a process as a farce and an insult to common sense. Perhaps, however, this burlesque is confined to Canada.

What is a food?

A food is any substance that, when taken into the body of an animal (or plant), serves by means of organic action to build up normal structure or to supply the waste of tissue. If this definition does not satisfy the total requirements of the case, I shall be glad to be corrected. In the mean time, however, I ask, how can alcohol be regarded as a food in the face of this definition? According to Dr. T. K. Chambers, of Edinburgh, "alcohol is not a source of force, and its direct action is an arrest of vitality." But if the creation of heat and the oxidation of tissue constitute the physiological influence of foods, then nitric acid (HNO_3) would be a most valuable form of diet, as it would rapidly accomplish both results. As a fact, however, it is like alcohol a poison, which when taken in sufficient quantity invariably causes death.

What say the great authorities upon this important question?

First, let me take an American physiologist of the highest reputation, no less a person than Dr. Austin Flint:¹ "Alcohol diminishes the activity of nutrition." Alcohol² "produces nervous exaltation which gradually passes off, . . . as a rule, followed by reaction and depression." Again,³ "The view that alcohol undergoes combustion or oxidation is based upon theoretical and not upon any experimental considerations." "It⁴ [alcohol] cannot be considered an alimentary principle, or as capable of supplying the place of articles which are actively assimilated. . . . Under ordinary conditions, when the organism can be adequately supplied with food, alcohol is, undoubtedly, injurious."

I now take a German authority, Baer, of Berlin (1881), "Alcohol contains neither albumen, nor fat, nor any other substance either present in the animal organism, or arising by chemical changes in the body, and replacing a part of the same." And

¹ Physiology, fourth edition, p. 177.

² Physiology, p. 176.

³ Physiology of Man, p. 104.

⁴ Loc. cit., pp. 108, 109.

yet, forsooth, some Solons, with licenses to prescribe drugs for suffering humanity, consider alcohol "a food!"

The regular foods are all essential to healthy existence, but C_2H_6O is not essential to the existence of any animal, from the homines to the helminthes. Indeed, to all classes and forms of animal life it is injurious, the extent of the injury depending upon the quantity taken into the system, the frequency with which it is consumed, etc.

Alcohol has never been found in living organisms, except in the wastes and refuse, and even then only in infinitesimal traces, so loath is the body to harbor this poison. Copper and lead have also been found in the wastes in infinitesimal quantities, but the nineteenth century has not yet given birth to an Æsculapian who advocates the consumption of these substances as food.

Is alcohol a "heat-producer" in the true sense of those two words? Most assuredly it is not, if the term be applied, as it is in this instance, to the human body. The momentary result of taking alcohol is the production of a feeling of warmth, which in cases of serious exhaustion may be very valuable. That is a question for physicians alone, and is outside the range of my knowledge. I do know, however, that the consumption of any form of alcoholic drink forces the blood to the outer part of the body, and, as a consequence, that blood becomes chilled before it returns to the heart. To assert, then, that alcohol is a heat-producer may not be a direct untruth, but such an assertion is a glaring case of *suppressio veri*.

In 1873 the well-known Dr. Klein delivered a lecture upon the siege of Paris.¹ I quote his words: "We drank because we had nothing to eat. We found most decidedly that alcohol was no substitute for bread and meat. We also found that it was not a substitute for coals. We had plenty of alcohol, but it did not make us warm. Let me tell you that there is nothing that will make you feel the cold more, nothing that will make you feel the dreadful sense of hunger more than alcohol."

Perhaps I may state that my charming young lady acquaintance, having apparently ransacked the entire literature of physiology, materia medica, and dietetics, has produced a formidable army of authorities to refute her opponent's statements. It reminds one of a regiment with a colonel, no other officers, no non-

¹ Medical Temperance Journal, October, 1873.

commissioned officers, and an entire absence of privates. The colonel is represented by a book upon *materia medica* by Mr. Mitchell Bruce, of Charing-Cross Hospital, London. This work is not in general use here; it is not in the Medical Library of this city (Buffalo); and I have been unable to consult a copy of it.

Is alcohol a poison? A poison is a substance which, when taken into the body, causes death or disease. Perhaps an experiment may answer this question. Put a few ounces of alcohol into a pail of water containing living fish, and watch how soon they die. Expose a fly to alcohol vapor in a closed vessel, and see how quickly death takes place.

The great living physiologists are, I believe, Foster, of Cambridge; Virchow, of Berlin; and Flint, of New York; and I have yet to learn that any one of them has ever written or spoken one word that could lead anybody to suppose that alcohol is a food. Of course, I do not expect to convince my fair opponent, because authorities and mere quotations are as nothing compared with the influence of some fascinating young gentleman, very recently turned out of a physician-making factory, and intoxicated with the exuberance of his own importance. But I do expect to persuade some of the mature readers of this journal that the only possible excuse for drinking wine, ale, beer, brandy, or anything else containing C_2H_6O is that such drinks give some pleasure for the time being. I occasionally take some ale or porter myself, upon this ground and upon no other. Careful observation has led me to the conclusion that an insufficient supply of vegetable food usually causes a craving for alcoholic liquors.

Does alcohol aid digestion? It is admitted that in "large" quantities (whatever that may mean) it actually prevents digestion for a number of hours. But it is urged that in "small" quantities it assists the digestive organs by inciting a copious flow of the gastric juice. This, no doubt, sounds very plausible to persons who are unaccustomed to investigate below the surface. If it were correct, the effect of a small dose of the poison named alcohol would be similar, if not identical, with that of a small quantity of ginger. But an artificially increased flow of the gastric juice has no influence upon the food, because, "while more fluid may flow, it is not so strong in its digestive power."¹ Further, the constant overdrawing on the natural resources of the blood, whence the gastric juice is distilled, impoverishes the blood

¹ Lees, *Is Alcohol a Medicine?*

and degenerates the gastric juice until impaired digestion becomes chronic. In health digestion is a natural process, which would be impaired by artificial promotion. To urge digestion would be as injurious as to urge growth. Extortion involves exhaustion and waste. If drugs are necessary, some harmless remedy, such as papaine, is usually prescribed. Did anybody ever hear of the late Sir Andrew Clark, for example, prescribing wine or spirits as a cure for indigestion? His course, I understand, was to forbid the use of any alcoholic stimulant in such cases.

It is admitted, I believe, that alcohol coagulates the albumen of nitrogenous food. It is also admitted, I presume, that the solving power in the gastric juice is the pepsine. It cannot be denied that alcohol precipitates the pepsine of the digestive juice. But pepsine is not soluble in alcohol, and when mixed with alcohol is hindered in its own office by the coagulating influence alcohol exerts upon food. If this reasoning is correct, then it necessarily follows that alcohol does not aid digestion. If my logic is defective or my data are erroneous, I shall be pleased to learn where the flaws are to be found.

The following extracts are taken from an article by Dr. Kingsbury in the *Humanitarian* for January, 1894:

The late Sir William Gull's opinion.—“Alcohol, even in moderate quantity, spoils the health and spoils the intellect.”

The late Sir Andrew Clark's opinion.—“I am bound to say that for all honest work, alcohol never helps a human soul.”

The late Professor Parkes.—“The inferences were that even any amount of alcohol . . . would act injuriously by increasing unnecessarily the action of the heart.”

Dr. Sydney Ringer.—“Experience plainly shows that, for the healthy, alcohol is not a necessary nor even a useful article of diet.”

The highest authority of this century upon dietetics is Sir Henry Thompson. What says he? “It is now rare to find any one, *well acquainted with physiology* [let the reader mark the words in italics, because the mere license to practise medicine upon some part of this continent does not necessarily imply a thorough knowledge of physiology], and capable of observing and appreciating the ordinary wants and usages of life around him, who does not believe that, with few exceptions, men and women are healthier and stronger physically, intellectually, and morally, without such drinks than with them.”

Dr. Kingsbury, writing to me on December 4 last, said, "Many of our best [English] life-insurance companies refuse publicans [saloon-keepers] absolutely, and those who do take them do so at an extra risk of £1 per cent. per annum." Why is this? Because saloon-keepers usually consume too much of their own "food." No insurance office, however, ever refused a butcher's life, or even increased the premium, because the man ate too many beef-steaks, injurious as over-eating unquestionably is.

I hesitate to trespass further upon the reader's attention, especially as the well-known works of Dr. Norman Kerr and Sir Benjamin Richardson deal exhaustively with this subject. If, however, the foregoing article requires any justification, a brief extract from the immortal Shakespeare may supply it,—

"Truth can never be confirmed enough,
Though doubts did ever sleep."

Drs. Todd and Bowman, in their "Physiological Anatomy," state positively that "alcohol retards digestion by coagulating the pepsine, and thus interfering with its action."

Sir Lyon Playfair states that "one hundred parts of ordinary beer or porter contain nine and a quarter parts of solid matter, and of this only six-tenths consist of flesh-forming matter. To drink beer or porter to nourish us is tantamount to swallowing a sack of chaff for a grain of wheat."

Baron Justus von Liebig, who started the theory that alcohol was a food, admitted that, "if a man drinks eight or ten quarts of Bavarian beer daily, in twelve months he will have taken into his system the nutritive constituents contained in a five-pound loaf of bread."

"The Diseases of Inebriety," compiled by the American Association for the Study of Inebriety, says, "Not only does alcohol abstract oxygen, the source of heat, from the blood, and thus reduce the fires of ordinary physiological combustion, but it benumbs and paralyzes certain nerve centres whose office is to preside over the regulation of animal heat."

Sir B. W. Richardson ("Canton Lecture").—" . . . Whenever we see an unfortunate person under the influence of alcohol, it is our duty to suggest warmth as the best means of recovery."

If the two latter extracts are an accurate statement of the facts,—and I venture to assert that no *man* outside a lunatic asylum will dispute them,—alcohol cannot be a heat-producer.

Types and Methods of Respiration.¹

BY J. GARDNER SMITH, M.D.,

Physical Director, Harlem Branch Young Men's Christian Association.



WE are told by the best authority (Gen. ii. 17) that when the Lord breathed into his nostrils man became a living soul. Ever since that time respiration and life have been closely related. In all forms of animal life air seems a necessary factor. In man we know that through the lungs air enters the blood. Passing through the nostrils, the pharynx, the larynx, the trachea, the larger bronchial tubes, the smaller bronchial tubes, the more minute air-passages, and finally the delicate air-cells, the oxygen of the air by a process of osmosis passes through the microscopic walls of these cells into the blood ; and carbonic acid gas passes from the blood in the reverse direction till it is exhaled again through the nostrils. Each breath then carries oxygen to and eliminates carbon dioxide from the blood.

This interchange depends upon the demand by the body ; the extent of breathing surface within the lung ; the elasticity and action of the thorax (or chest) ; upon the nervous mechanism controlling each ; and, not least, upon the purity of the air we breathe. Bodily demands, of course, depend upon mental or physical exertion. The man who never makes much physical or mental effort may live to a good old age, but he is never prepared for an emergency, such as injury or disease of a portion of the lung, nor can he enjoy any violent effort with safety ; and in his later years his general health, if it has not done so already, will deteriorate.

The extent of breathing surface within the lung varies with the individual. His heredity, his early years, acute or chronic disease of the bronchial tubes or lung substance determine this condition to a certain extent. He may, however, materially improve and increase this function by judicious respiratory exercises (so-called "pulmonary gymnastics"). This practice should be begun early, the earlier the better, and be continued throughout life.

The capacity of the thorax, too, may be increased by judi-

¹ From the Medical Record.

cious exercise in breathing. The passive individual in a healthy condition at each inspiration inhales perhaps thirty cubic inches (Kirke) of air. This is called "tidal" air. The average individual without especial practice in breathing or vigorous physical exercise of some kind can inhale a variable quantity over and above this, called a "complemental" air. Again, this individual can exhale, by forced expiration, a variable quantity over and above the ordinary tidal air called "supplemental" or "reserve." There still remains in the chest after a forced expiration a certain quantity of "residual" air, estimated (Kirke) at 100 cubic inches. This quantity also varies with the ability of the individual to contract all the diameters of the chest. In my statistics of 2000 men of average age, about 23 years, the total capacity of the chest ("complemental," "tidal," and "supplemental" air) was about 215 cubic inches, and this quantity is about the same for 2000 men since that reckoning. This capacity by practice was increased by fifteen cubic inches (average) within one year.

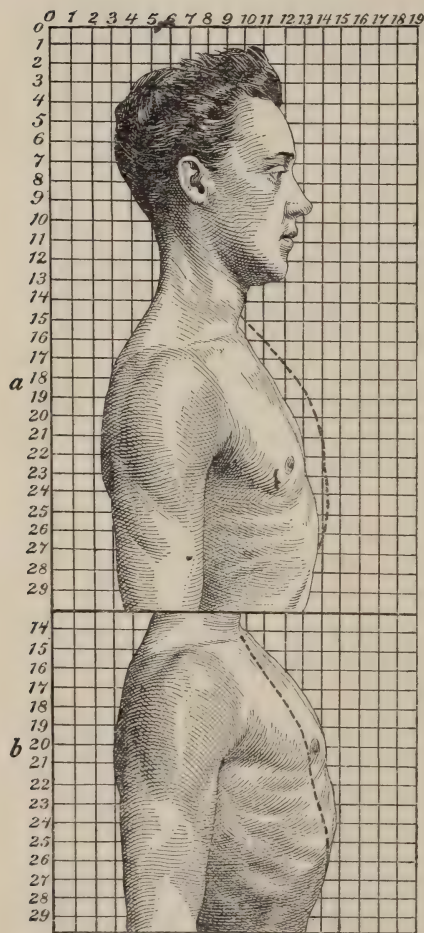
The interchange of air within the lungs and the chest capacity depend largely upon an intelligent understanding of the mechanics of respiration and the persistent practice of the methods of respiration. Proper co-ordination of the muscles of the thorax is highly important. Many men of ordinary intelligence, and many more with "thin gray matter," have no control of the chest. Some do not know even how to inhale, to say nothing of the practice of the various types of respiration.

There are three main types of respiration in man,—superior thoracic, diaphragmatic or "abdominal," and inferior thoracic,—illustrated by the following illustrations.

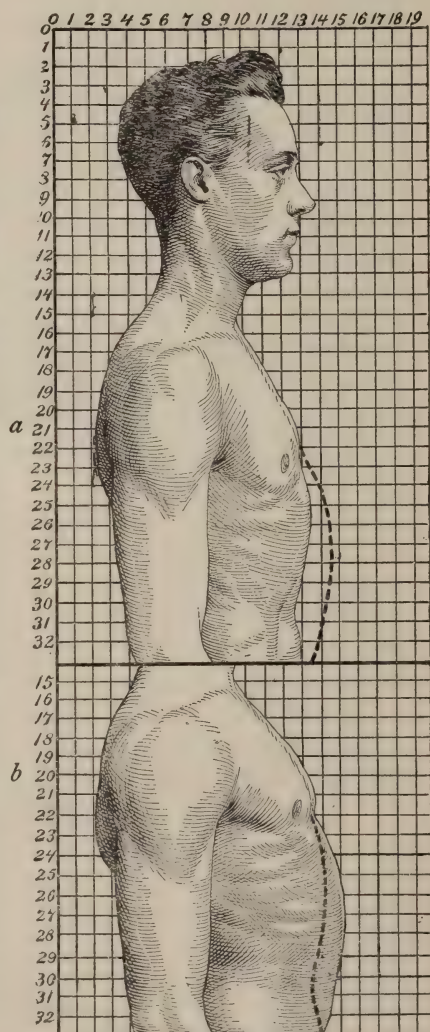
Mechanically, the thorax is a conical box bounded laterally by the ribs; the sternum and costal cartilages anteriorly; the ribs and spinal column posteriorly; the diaphragm, a dome-shaped muscle with a tendinous centre, forming the base. This conical box is capable of movement in every direction. Muscles raise the ribs upward and forward, increasing the antero-posterior diameter; muscles rotate the ribs outward and upward and raise them laterally like the bail of a pail, increasing the lateral diameter; the diaphragm moves downward, increasing the vertical diameter.

The size of the chest thus increased, the air within the lungs becomes rarefied; the pressure within the thorax becomes less, and immediately the external air, with its continual pressure of fifteen pounds to the square inch, rushes in to fill this "tendency

to a vacuum." Of course, it is highly important that the nostrils and other air-passages and the chest and abdominal wall be free from constriction or obstruction.



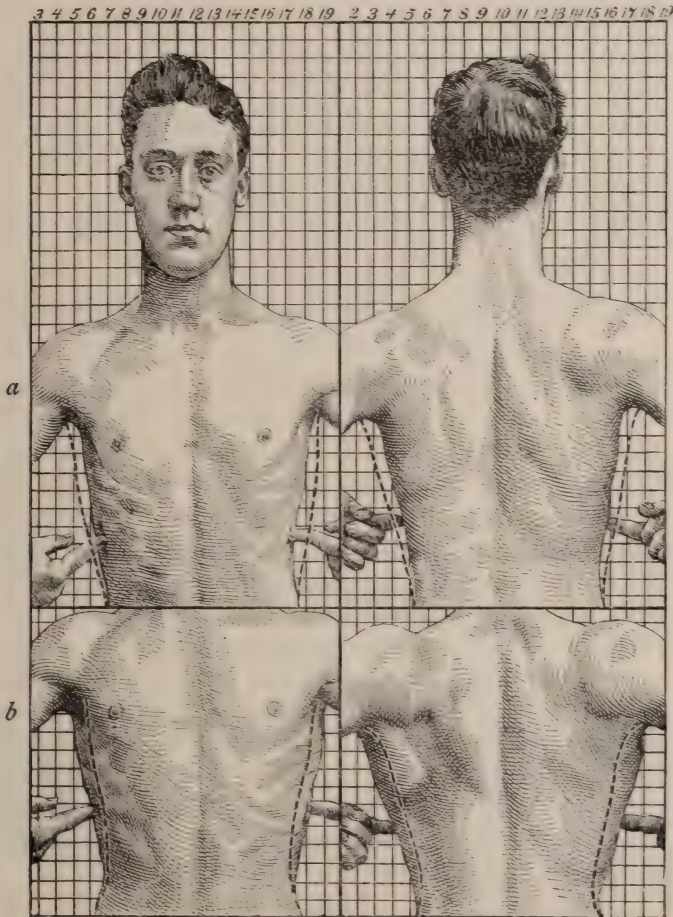
FIGS. 1 and 2.—Upper chest and superior thoracic breathing.



FIGS. 3 and 4.—Abdominal or diaphragmatic breathing.

Upper chest or superior thoracic breathing (see Figs. 1 and 2, *a* to *b*) may be practised on command "inhale" and "exhale," or "one," "two," and "three," "four." On the first command

or first two counts, raise the upper chest, upward and forward, to the fullest extent (see *a* to *b*). Do not raise the shoulders. On command "exhale," or "three," "four," the chest should recede (see *b* to *a*); keep head erect. Pupils will grasp the idea more



FIGS. 5 and 6.—Lower side chest or inferior lateral thoracic breathing (front view).

FIGS. 7 and 8.—Lower side chest or inferior lateral thoracic breathing (back view).

quickly and better by placing the left hand on the upper chest, inhaling and exhaling through the nostrils. This may be done to music (count of sixteen). The photographs show the proper movement of the chest.

Abdominal or diaphragmatic breathing (see Figs. 3 and 4, *a* to *b*). On command "inhale" and "exhale," or "one," "two," and "three," "four," lower and raise the diaphragm. This action presses the abdominal organs downward, and thus, on the first command of "one," "two," the abdomen protrudes (see *a* to *b*). Do not move the chest wall or bend the body.

To aid in understanding this exercise, press upper chest with the left hand and place the right palm just below the lower end of the sternum. At every inhalation the right hand should be pushed forward, and on second command, or "three," "four," the abdomen should recede underneath the hand.

Practise to count of sixteen or more or to music. Always breathe through the nostrils.

LOWER SIDE CHEST OR INFERIOR LATERAL THORACIC BREATHING.

On command "inhale" and "exhale," or "one," "two," and "three," "four," distend and contract the lower chest laterally. On the first command, or "one," "two," the ribs are rotated outward and raised laterally (see *a* to *b*), as one would raise the bail of a pail. Thus the broadest part of the chest is enlarged and much air is inhaled. (See Figs. 5, 6, 7, and 8, *a* to *b*).

The writer examined one man with this part of the chest extraordinarily developed, who had a chest capacity of over 400 cubic inches. (The spirometer recorded no higher.) On count "three," "four," or "exhale," expel the air by contracting the lower chest. In this exercise the upper chest and diaphragm should remain passive. The backs of the fingers or point of index fingers pressing lightly about the ninth rib will enable one to understand this rather difficult exercise. The best singers have almost complete control of lower chest and diaphragm and breathe but little with upper chest.

OBSTACLES.

Of course, it is highly important in diaphragmatic and inferior thoracic breathing that there be no constriction about the waist or lower chest. Many ladies cannot run or exercise vigorously mainly because of such constriction. Again, some children find difficulty in breathing with the mouth closed. In most of these cases there is some deformity or disease within the nostril, which should receive surgical attention.

PURE AIR.

Another very important consideration is pure air. The air of a well-ventilated room, class-room, or gymnasium may be beneficial, but every opportunity for practice in the out-of-door air should be improved. Running or other vigorous exercise stimulates respiration, because the blood demands more oxygen. The individual who understands how to use his chest is able to meet this demand more readily. In the individual with a large chest capacity, who understands how to breathe, who is free from disease of bronchial tubes or lung-tissue, and without heart-disease, shortness of breath is seldom seen. Breathing exercises are most beneficial when practised after muscular exertion. They should occupy an important place in physical training.

The effects are better development and control of thoracic muscles; more power in speaking and singing; a healthier condition of the lungs; improved circulation of the blood within the lungs; more rapid and efficient aeration of the blood; and better general health.

Men's Underwear—A Plea for Comfortable Clothing.¹

BY ARTHUR B. COOK.



MITHIN the past few years there has been considerable revolution in the clothing of *women*, resulting, beyond doubt, advantageously. No radical departure has recently taken place in the wearing apparel of *men*, although there has been a change for the better in the styles of hat and shirt.

There seems to be room for a reform in underwear, which would give increased comfort and improvement in health. In fact, the latter would follow, if only as a result of the former; for whatever gives real comfort, without conducing to indolence, is a hygienic agent.

We have no new invention to announce, but simply desire to call attention to a form of garment which, while it has been on the

¹ From the Brooklyn Medical Journal.

market for years, has been so little worn by men as to be practically unknown from an experimental stand-point.

The article in question is the "Union Suit,"—a combination of undershirt and drawers in one garment, opening in front like a coat, and with no horizontal break or seam from the neck to the ankle.

This suit is worn to a limited extent by women, who, for æsthetic reasons if for no other, appreciate lightness of clothing at the waist. Of the combination suits worn by men, we are told by one company that three-quarters of the number sold by them are bought for horse-back riding. Any one accustomed to this exercise can readily see the advantage in that connection of one piece of clothing which perfectly keeps its position, instead of two garments, which are apt to become displaced in riding, and to give not only discomfort, but exposure.

The same advantages apply to various forms of exercise. But the arguments in favor of the proposed change are by no means confined to the field of sport and athletics.

The present distribution of covering in the regulation male attire seems unnatural. The upper part of the body has three thicknesses (with the coat buttoned, four), and the limbs, two, while that portion of the body over which the vest and trousers lap, and the undershirt and drawers, has five, or, the coat being buttoned, six (treating each garment as one thickness). The part which is so thickly covered is the very portion in which nature, by its arrangement of heat-making machinery and heat-retaining tissue, has already provided for the greatest concentration of warmth.

The extra covering might be fairly unobjectionable were it not for the fact that, in the sitting or stooping posture, which so many men assume at their work, the clothing in front of the middle of the body gathers into folds, which are equivalent to a number of extra thicknesses; while, with the common method of buttoning and buckling the trousers, vest, and drawers at the waist, there is added a pressure which creates, in this overlaid portion of the body, a heat which often becomes intolerable. To further complicate matters, the shirt-bosom, thick and with board-like stiffness, is often made so low that when the wearer is seated it extends below the top of the trousers and contributes materially to the supply of oppressive heat. Almost every man with an average blood-supply must suffer from this condition of

things, and occasionally seek relief by throwing open the vest, loosening the trousers at the waist, or taking a turn about the room, to come in free contact with the air and give the blood fresh distribution.

This undue heat and congestion about the centre of the body is, of course, unhealthful. It robs the extremities of blood, and by producing irritation and discomfort, deprives the mind of nutritive support, and destroys the mental equilibrium which is essential to the best work and the best life. It is therefore not only a directly consuming force, but a generator of consuming forces.

To partially relieve this pressure, many support the drawers by means of loops held by the suspenders; others, by straps hung from the shoulders. These are helps, but they do not obviate the cumbrous pressure of material under various conditions.

The only real relief that appears to have been discovered is in the union suit. Hanging easily from the shoulders like a robe, it gives a uniform undercovering, free from pressure, and adapting itself to every movement of the body. After using the old-fashioned garments, one wearing the union suit finds in it a freedom of motion that is absolutely delightful. After any active exercise, there is no displacement of clothing, with a consequent period of discomfort, lasting until an opportunity occurs for readjustment. To persons who by reason of stoutness or lack of suppleness have a desperate struggle in "getting into" the old-fashioned undershirt, this suit, so easily put on and off, is a great boon. The linen shirt is, of course, worn wholly outside the combination garment, thus furthering the even distribution of the clothing.

It will be said that this section of the body, containing several vital organs, requires special protection from the cold. It must, of course, be adequately protected, but nature has in a large degree taken care of that by fitting the front of the body to endure more exposure than the back. Furthermore, the overclothing of this delicate part of the body may prove a source of weakness, for frequent overheating may simply render it more sensitive to sudden cold, especially when a free perspiration has been produced immediately prior to exposure. Any one who desires additional protection in front may be readily satisfied, for a large proportion of the union suits are made with double breast. But in

most cases we believe the single-breasted suit to be preferable, as giving a more even temperature.

As a matter of fact, however, in a climate so variable as that of the Eastern sea-board, many persons do not depend much upon underclothing for protection from specially severe weather, the variations in temperature being so great in a single day that the only satisfactory method of accommodation is by changing the outer garment or garments.

Municipal Hygiene the Greatest Need of the South.

BY GEORGE TROUP MAXWELL, M.D.,

Jacksonville, Florida,

Member American Academy of Political and Social Science, etc.

(Concluded from page 227.)



IN my way to attend the session of the Ninth International Medical Congress, at Washington, D. C., in the early days of September, 1887, I was accompanied by Dr. John P. Wall, of Tampa, who was also a member of the Congress. Dr. Wall is one of the most enlightened physicians of the South. Dr. Wall told me he did not intend to return to Tampa immediately upon the adjournment of the Congress: that he had urged improvement of the sanitary condition of the city, which was very bad, and received in return only unmeasured personal abuse. He said that he apprehended trouble, and had left the hostile authorities to meet it as best they might.

Dr. Wall returned to Tampa on the 25th of September, and very quickly discovered that his worst fears were being realized, for yellow fever was present in the city. I visited Tampa by invitation during the prevalence of the epidemic in the latter part of October, and at that late date, though immense efforts to improve the sanitary condition of the city had been in progress for several weeks and were still going on, the unhygienic condition of Tampa was simply disgraceful. From the evidence taken at the time on the spot, I had and have no doubt of the local origin of the disease. Since the epidemic strenuous efforts have been made to place the blame at another's door, but without success. Dr. Wall is an importationist; but his high sense of honor does

not permit him to declare falsely or to suppress truth. Accordingly he is found making the following statement in his report to Dr. Hamilton: "In August, 1888, the fever appeared in Palmetto, Fla., notwithstanding a very rigid quarantine against Manatee from the 18th of July. The first victim was an invalid lady who had not been from home for months, and consequently could not have contracted infection in another locality." Can there be any doubt that that was an instance of local origin?

Yellow fever was publicly proclaimed to be in Jacksonville "with a tendency to become epidemic" on the 9th of August, 1888. Dr. Neal Mitchell, President of the Duval County Board of Health—there was no city board—wrote to Governor Perry on the 10th, "We are unable to trace the case in Bucky's block to South Florida." This is another instance of local origin.

That the epidemic in Brunswick last fall was of local origin, Dr. John Guitéras, the expert who was sent to that city by the Surgeon-General of the Marine Hospital Service, virtually conceded. Of the first case, Dr. Branham's, Dr. Guitéras said (August 21): "Suggest that Branham was infected in town. Have suspicion that sporadic cases have occurred here early." He had previously stated (August 17): "I visited the quarantine station, where the doctor was taken sick, this afternoon. I cannot see any positive evidence that he contracted the fever there, except this: where did he get it if not there?" August 21—"One case of fever, not connected with Branham's." August 22—"A third case of yellow fever developed this morning—a child 5 years old; lived a mile from the Branham house. Third case unconnected with others." So much for Brunswick.

Of Jesup, Dr. R. D. Murray, Surgeon Marine Hospital Service, an expert, said: October 1—"Cannot account for infection of case at Jesup. Not caught in or from Brunswick. Think there have been cases for the past month."

So Jesup may be added to the list.

August 9, Dr. Robert W. Hargis, President Board of Health, Escambia County, Fla., telegraphed Surgeon-General Wyman: "Two deaths from yellow fever." This was at Pensacola, where there was no importation.

Here, then, we find six different localities where yellow fever has occurred spontaneously, or without having been imported, within the last seven years, in each of which quarantine was rigidly enforced.

In the face of these facts of almost present occurrence, and of the claim by so high an authority in such matters as Dr. Sternburg, that to municipal hygiene is due the fact that "certain Northern cities, which formerly suffered severely from yellow fever epidemics, have enjoyed long immunity from such visitations," is it not surprising that little or no attention has been given to municipal improvement of our Southern cities? Yet it must be confessed, and I do so with shame, that not one step—till now, that Jacksonville has made a laudable movement in that direction by the suggestions of her own enterprising citizens—has been taken to improve the sanitary condition of a single city of Florida, since the establishment of a State Board of Health, in 1889.

It would be amusing, if the consequences were not so disastrous, to see the extremities to which the importationists are driven for support of their heresies. For illustration: Yellow fever broke out around a conspicuously insanitary centre at Jackson, Miss., in 1888. There had been an interval, since the last epidemic, of ten years; and there was no possible ground for suspecting importation. The dilemma was great; but the inventive resources of Dr. Hamilton were equal to the emergency. He solved the difficulty by declaring that the germs had been imported in 1878, and had "hibernated" (!!!) ever since. Was there ever such prostitution of language? Still the yellow fever germs slept only through ten years; and that is only half the length of the historic nap of Rip Van Winkle. Of course the germs "hibernated" *summer* and winter.

That the appliances of modern sanitary science are absolutely necessary to insure healthfulness has been so forcefully declared by that distinguished man, whose efforts for the prevention of epidemics in New Orleans are known throughout the civilized world, that I will quote him here. After four years' service as president of the State Board of Health of Louisiana, during which he perfected the best methods of maritime detention and disinfection that the world has ever known, Dr. Joseph Holt said to the people: "Quarantine as we may! Declare non-intercourse with the world! Build around ourselves a wall without gates, if we will—until the city is provided with a superficial and subsoil drain, and its sewage disposed of through some efficient system, we live in jeopardy, yea, in the certainty of disaster."

That those methods when employed are efficacious to prevent

epidemics of yellow fever, the experience of the Northern cities which have enjoyed long immunity from such visitations, which were frequent formerly, demonstrates.

There was not a Southern State, Texas excepted, which, during the decade from 1875 to 1885, increased in population and in the development of her natural resources as did Florida. That her growth in population has been checked, and that her business enterprises have been paralyzed since, no well-informed man can gainsay. This destructive tendency has been effected by slanders upon her reputation for healthfulness, which have been promulgated by National and State officials, and by barbaric practices, ostensibly for the prevention and suppression of epidemics. Leaving out of view the great amount of suffering from sickness, the unnecessary increase in the number of deaths, the annoyance and distress caused by the flight of panic-stricken residents, anywhere and everywhere, in the vain hope of finding shelter and asylum, the economic side of this question is worthy of consideration.

It is estimated that the pecuniary loss to the State of Florida from the epidemics of 1887-88 reached the enormous figures of \$15,000,000, a per capita destruction of values of over \$37.50. All this sickness and suffering, all these deaths, all this distress and discomfort, all this destruction of property, might have been prevented had the State of Florida put into operation well-established principles of sanitary science.

After all her terrible experience she still refuses to enforce, or neglects, the only certain preventive measure,—viz., well-executed scientific sanitary improvements.

I am, first of all, a Floridian, and next a Southerner. My love for Florida and the South has furnished the inspiration for this exposure of neglect, which is inexcusable if not criminal.

My long experience as a physician assures me that successful treatment depends upon correct diagnosis. First determine the nature of disease; the application of remedies then becomes easy. The malady of Florida and of the South is neglect of municipal hygiene. Humanity and patriotism demand the application of the only certain remedy.

ADDENDUM.

“Truth crushed to earth shall rise again—
 The eternal years of God are hers;
 But Error, wounded, writhes with pain,
 And dies among his worshippers.”

In the foregoing paper, which I had the honor, by special invitation, to read last spring before the Southern Immigration Congress, at Augusta, Ga., amplification was inappropriate, and, besides, some important facts and deductions were necessarily omitted.

The Congress was composed of intelligent business men, only few of whom had made a study of the science of hygiene; but, as my address was listened to with interested attention, and as many complimentary expressions were volunteered by prominent members, among whom were governors of states and mayors of cities, I have decided to print it, with this supplement.

I have declared that the growth and prosperity of Florida were paralyzed by, and that she is yet suffering from, the epidemics of yellow fever which afflicted a few localities in 1887-88. This will be made apparent by an examination of the movement of population in the decade from 1880 to 1890.

Average annual increase, 1880 to 1885	13,782 2-3
Average annual increase, 1885 to 1890	10,603 1-5
Annual increase, 1885 to 1890	3,179 2-5
Total decrease, 1885 to 1890	15,879

Mr. H. S. Elliott, the statistician of the Agricultural Department of the State, who kindly furnished these figures, writes as follows: “The loss during the last five years is attributed to the severe freezing winter of 1886, and to the years 1887 and 1888, during which yellow fever prevailed at Tampa in 1887, and the epidemic in the summer and fall of 1888. If, as is generally stated, the value of each immigrant to the State is as \$1,000, then the freeze of 1886, and the yellow fever of 1887 and 1888, cost Florida nearly \$1,600,000 from that source alone, to say nothing of the utter stagnation of business (to which he might have added the decline in value of all kinds of property). The same ratio of increase applied now that obtained from 1880 to 1885 would give Florida a population of 444,550, and it is very conservative to do so. The population in 1890 was 391,422.”

These figures are startling, and must attract the attention of

every one who has the welfare of Florida at heart. From them, and the logical deductions of Mr. Elliott, we can learn why it is that immigrants have not come and, until the obstacle is removed, will not come to Florida.

In discussing the causes to which Mr. Elliott attributes the conspicuous falling off in the increase of population from 1885 to 1890, I will first examine the facts in regard to the freeze of 1886. Perhaps the effect upon the orange crop would be as fair a test of the injury to the State, caused by the freeze, as can be applied.

In his ninth annual address, Major Fairbanks, President of the Florida Fruit Exchange, said: "When the Exchange was organized in 1885, the whole crop of the State amounted to but 600,000 boxes; the crop of 1893-94 amounted to over 5,000,000 boxes, an increase of about 4,500,000 boxes, equal to 750 per cent."

From Mr. Ives, manager of the Fruit Exchange, I have received the following facts: "The orange crop of 1884-85 was 600,000 boxes; that of 1885-86 (the winter of the freeze), the crop was 900,000 boxes; of 1886-87, 1,260,000; of 1887-88, 1,450,000; of 1888-89, 1,950,000, and that of 1889-90, 2,150,000. Thus it is seen that, notwithstanding the freeze of January, 1886, the crop of oranges steadily and rapidly increased, which progressive increase was continuous till in 1893-94 the enormous yield of 5,055,376 boxes was reached."

Could disproof of disaster to Florida from the freeze be more emphatic? I submit, as proven, that the freeze as a factor which militated against the growth and prosperity of the State may be eliminated.

Yellow fever has occasionally prevailed in a few localities in this State since its advent to Pensacola in 1764, almost a century after its first appearance in New York, and five years before it occurred in New Orleans; but nothing approaching the disastrous effect of the epidemics of 1887-88 had ever been experienced. Why was this? This is a pertinent and vital question, and it behooves the officials and people of Florida to answer it.

When it is remembered that yellow fever was epidemic in Fernandina, Jacksonville, and St. Augustine in 1877, and when, in that connection, it is recalled that the growth and prosperity of Jacksonville and of the peninsular portion of the State were never so rapid and substantial as they were during the eight or ten

years immediately succeeding that epidemic, the inquiry is forced upon every reflecting mind: What has caused the marked contrast between then and now? If yellow fever did not then excite wide-spread alarm and unreasonable panic, what has made it, in these latter years, a horrifying bugbear? Was yellow fever more fatal in 1887 and since than it was in 1877 and before? Can we thus explain the serenity of the people of the State outside of infected localities, and of the Union, in 1877, and the panic fright that prevailed and the "insensate cruelties" which were practised in 1887-88 and in every epidemic since? Comparative mortality statistics answer with emphasis, No! The percentage of deaths in Jacksonville was less than ten, and in Brunswick there were only fifty deaths in a population of 5000. But the books of the collector of the port of Brunswick show a loss to the commerce of that small city of over \$1,500,000 in three months.

"The thought of being forced to remain in an infected city, as the people of Jacksonville had been a few years before, so terrified the citizens of Brunswick, that, hurriedly gathering together what few things might be taken with them in a hasty flight, they rushed to the railway trains in the hope of being able to escape." But, alas! these unhappy human beings, mainly women and children, found almost every door closed against them. A lady, writing to Dr. Le Hardy of her bitter experience, and of the scenes she witnessed, said: "I could never describe to you the appearance of things and people at that depot in Brunswick on the evening of the 12th; it beggars description. My husband said he had never seen anything comparable to it since the war. The people seemed wild. Several coaches (eleven) were added to the train to accommodate the immense number of people leaving their homes. It was impossible for many to get more than standing room. Many were leaving comfortable homes who had not means to be comfortable elsewhere, and most of them, as I heard, left their furniture and clothing, and much else they valued, just as they were when the alarm was given. My friend, Mrs. A., went off so hurriedly that she left much of her clothing behind, and her sister had to send garments and material from Savannah for herself and child, to make them comfortable."

Can a more saddening picture of human distress and suffering be presented for the contemplation of civilized men at the close of the nineteenth century? Is it not enough to stir the indignation of every humane man and woman in the country?

Of the absurdities and cruelties practised Dr. Le Hardy writes: "On the following morning six doctors were called in to hold a consultation, under the direction of Surgeon Hunton. The participants were required to protect themselves against the 'contagion' by donning long, black rubber coats. It was in this costume they surrounded the bed of poor Branham for the purpose of investigating his case. Is it surprising that the man died?"

So intense was the feeling against the surgeons, that when the Cox child's case was diagnosed yellow fever, the mother, rather than have her child taken to the Branham house, picked her child up and ran with it into the woods, where, without medical attention, the child got well.

It would be impossible for me to express the superlative disgust with which I, who have been familiar with yellow fever since 1853, read of these horrible proceedings, which my experience taught were unwise and unnecessary. *And, notwithstanding all these harsh practices in the name of sanitation, the fever continued and spread.*

What, I repeat, has caused the marked contrast in feelings and conduct between 1877 and 1887 and the present time? The answer is simple and easy. It is that the Marine Hospital Service and other health officers have successfully indoctrinated the minds of a majority of our people with erroneous ideas of the nature of yellow fever, and the belief that upon them, because of their eternal vigilance and superior wisdom, the salvation of the country from pestilence depends.

Florida is, in fact, a remarkably healthful State, and it is cruelly unjust to attempt to create—or, rather, to perpetuate—a contrary impression. I use the word "perpetuate" advisedly; for the belief is now abroad that she is "the point of danger to the Union,"—the "gateway" for the introduction of yellow fever; and this impression was created by the Marine Hospital Service, which has been efficiently supported by our State officials.

Adopt the methods employed by Northern cities,—Boston, New Haven, New York, Philadelphia, etc., which formerly suffered much oftener than any city in Florida has done from visitations of yellow fever; that is, put our cities and towns in good hygienic condition, and Floridian cities will enjoy the same immunity from pestilence that they have experienced from fifty to one hundred years.

In July of last year, through the columns of the *Times-Union*, I essayed to discourage the expense and trouble of making an exhibit of Florida's productions at the World's Fair, for the reason that no demonstration of her advantages can overcome the terror inspired by the belief that it is hazardous to live in this State, and even to visit it except during the winter months. Mr. Roussel, who was in Chicago aiding Mr. Arthur Jackson's feeble attempt to make a display of Florida's products, replied to my article. He denied that my views were founded on facts. But about September 1 he wrote me and said: "Recent events have convinced me that you are right."

Those recent occurrences were the reports, in August, of yellow fever at Pensacola and at Tampa. The mouths of visitors to the Florida Exhibit, which had been closed till then, or uttered "only friendly expressions," were opened; and Mr. Roussel became a convert to my view that, until the calumnies against the climate of Florida are refuted, as the truth will do, all effort to induce immigration of intelligent settlers must prove futile.

During the Confederate Reunion last spring, at Birmingham, Ala., I was speaking to several gentlemen of the incomparable climate of Florida, and of the many and great advantages she offers to settlers. In the midst of my remarks I was interrupted by General Johnson, commander of the local camp which entertained that vast assemblage of veterans, who said, "But for one thing, Colonel." What is that? I asked. "Yellow fever." On a visit to his former home, Bath, Me., October, 1893, the first acquaintance met, asked Mr. F. W. Hawthorne: "Has yellow fever been as bad as usual this summer in Jacksonville?" And so it is everywhere; go where you will, you will find the same horror of Jacksonville and of the State.

This is the fine work of the health officials, National and State, of every grade and rank. I denounce it as an unmitigated slander, without the slightest foundation in truth. But, so widespread is this conviction, and so firm is its hold, that it will take years to disabuse the minds of the people of the effects of the calumny.

Yellow fever has shown in this State, as it has everywhere, its utter disregard of quarantine restrictions. Although it was announced by the president of the local Board of Health that yellow fever had caused two deaths in August last at Pensacola; and by that accomplished expert, Dr. John P. Wall,

that it was on board a ship that had been given *pratique* by the quarantine physician at Port Tampa, in consequence of the positive declaration of Dr. Porter that one of the cases at Pensacola was not yellow fever, and that the other was only a "suspicious" case, and his equally positive denial that the cases on the "Markomania" at Port Tampa were yellow fever, I permitted myself, in the absence of proofs to the contrary, to entertain doubt of the accuracy of the diagnosis of the Pensacola and the Tampa physicians. A few days later, however, Dr. Porter published that there was a case of yellow fever at Port Tampa. This announcement seemed to give support to the opinion of Drs. Wall and Weedon that there were indeed cases of that disease on the "Markomania." But at the close of the third day Dr. Porter changed his diagnosis, and so publicly declared, calling the disease at that time malarial fever. This was the only case that Dr. Porter saw and personally attended; and it would seem that his acknowledged mistake in that case would have made him somewhat modest in his criticism of the diagnoses of reputable experienced physicians in cases he did not see, in one of which he admits there was ground at least for doubt.

But Dr. Porter, in his official report, has removed every atom of distrust of the correctness of the diagnoses of the Pensacola physicians, and has made it equally certain that the Tampa physicians did not err. By the clinical records and the post-mortem revelation of the cases at Pensacola, which he has published, Dr. Porter has furnished presumptive proof that the diagnosis of the local physicians was correct; and the result of the microscopical examination of the black vomit from the Wood child, which himself was instrumental in procuring, affords "confirmation strong as proof of holy writ" that hers was a case of genuine yellow fever.

Dr. Kinyoun, to whom the specimen was sent, writes: "I have made a microscopical examination, and find the following: The stain, when dissolved in a 30 per cent. solution of caustic potash, revealed blood-corpuscles in considerable numbers. Stained preparations with aniline colors showed, in addition thereto, disintegrated blood-corpuscles and epithelium. Chemical examination shows the presence of bile-salts in small quantities." More irrefragable proof as to the fact that that was a genuine case of yellow fever could not be obtained.

There is occasionally a black vomit in some cases of so-called

"bilious fever," but that differs materially from *the* black vomit of yellow fever. In the former case the matter vomited is chiefly altered bile; in the latter it is blood, changed probably by the secretions of the stomach. Microscopical and chemical examinations afford a positive solution of the question.

And of the case at Port Tampa, which he attended, the clinical record gives conclusive evidence that Neumann had an undoubted case of yellow fever, which he contracted on the "Markomania," which ship he visited forty-eight hours before he was taken sick, thus proving that the "Markomania" was infected, notwithstanding "detention, fumigation, and disinfection." Dr. Porter bases his change of diagnosis upon the fact that on the 30th, after the lapse of seventy-two hours, quinine was administered and the fever subsided. That the subsidence of the fever and the use of quinine were mere coincidences, and not effect and cause, is proven by the facts: (1) That in mild cases of yellow fever the fever usually lasts but "two or three days;" and (2) that quinine was given two days before (28th), without arresting the fever.

That I am not singular in regarding that case as one of yellow fever is shown by this statement of Dr. Porter: "It is but fair, however, to say in this connection that of all the medical men at a distance, of experience in yellow fever, to whom the records of this case (Neumann's) were referred, all but one expressed an opinion that the symptoms justified the apprehension in all particulars." That is, in direct language, they confirmed the original diagnosis.

In the light which the facts above given throw upon the subject, what becomes of the efficacy of quarantine upon which the people of Florida and the State Board of Health place their sole reliance for protection?

The State Board of Health have declared through the president that "the continual visits to our western coasts of Spanish smacks engaged, it is well known, in illicit traffic, seriously menace the health of the State by yellow fever." Indeed, it has been stated by the health officer that it is the chief source of danger, yet the president candidly confesses that it is impossible to prevent that traffic. He says: "By the methods now in vogue it is almost impossible to capture or punish these offenders." It may not be inappropriate to remark that, though this "serious menace to health" has been in operation "since the memory of

man runneth not to the contrary," there is not convincing proof that yellow fever has ever in a single instance been introduced through that instrumentality; but the disease has, within the preceding year, appeared at Pensacola and at Port Tampa, where quarantine has been most rigidly enforced.

A most grotesque feature of this anti-smuggling war is that the president of the Board, oblivious of the fact that the power "to regulate commerce with foreign nations" belongs solely to Congress, has implored the Governor, who is powerless, to permit him to arm the pleasure yacht "Missoe" with a brass cannon and six rifles; but he expressly declares that the armament is wanted only for "a show of force." It is to be used in a Pickwickian sense. Nobody is to be hurt, and of this fact the smugglers are advised through the public print!

It is gratifying to those who contend that yellow fever is not contagious to receive such vigorous support from so strong a contagionist as Dr. Porter. He says: "A notable fact in connection with these cases (at Pensacola) is that, during their occurrence, no precautions were taken to prevent any possible infection from them, and free and unrestricted communication was had with each, notwithstanding which there has been no development of a suspicious nature among the non-immune so exposed, and further that the meteorological conditions during that period were peculiarly inducive of yellow fever had the germs of the disease been introduced in the place."

It may not be without interest to the taxpayers of Florida to learn that, including the expense of an extra session of the Legislature, the cost of maintaining the State Board of Health to January 1, 1894, was \$144,775.26. In July, 1889, the president of the State Board of Health wrote: "I shall feel that a merciful Providence rather than man's efforts has protected and preserved us in safety." There is not a year since that our "protection and safety" have not been due to a "merciful Providence," rather than to any effort of man.

Habits of Posture a Cause of Deformity and Displacement of the Uterus.¹

BY ELIZA M. MOSHER, M.D.,

Brooklyn, N. Y.

(Concluded from page 218.)

IN its normal position the pelvis occupies a horizontal plane, with no lateral angle of obliquity. Sitting upon one ischium or standing upon one foot produces a lateral inclination, which, if allowed to become habitual, has power to change the shape of the entire body. The scope of this paper permits a study only of the influence of this position upon the organs of the pelvis.²

With the pelvis in "lateral obliquity" the superimposed trunk retains its equilibrium by throwing its upper weights (arms and head) towards the elevated side. (See Figs. 6 and 7.³) By this movement the spinal column is made to take a long lateral curve, with slight rotation upon its vertical axis. The shoulder, hip, and ribs approach each other, shortening the body line and encroaching upon the space within the abdomen in that region. Opposite conditions obtain upon the side which is unsupported. The contents of the abdomen move downward and towards the latter, carried by gravitation and mechanical pressure. Loops of intestine crowd into the pelvis *upon that side* and against the uterine fundus, prying it out of the place to which gravitation alone would carry it, and over towards the side where there is least pressure. The broad ligament upon the lower side is stretched and pressed upon, while the other tends to grow short from disuse. The ovaries receive their share of ill-treatment and suffer accordingly.

As these changed conditions become permanent, we should expect the circulation of blood through the organs of reproduc-

¹ Read before the Gynecological Section of the Pan-American Congress, Washington, D. C., September 8, 1893. Reprinted from the New York Journal of Gynecology and Obstetrics for November, 1893.

² For a further development of this subject see author's paper on "The Influence of Habits of Posture upon the Symmetry and Health of the Body," Brooklyn Medical Journal, July, 1892, and "Habitual Postures of School Children," Educational Review, N. Y., October, 1892.

³ Photographs taken from Dr. Bernard Roth's "Treatment of Lateral Curvature of the Spine."

tion to be interfered with, since all the vessels enter and find exit from the uterus at its sides, in close relation with the insertion of the broad ligaments. Upon the short side they would become *over-tortuous* in their journey to the organ, while upon the other they would straighten out abnormally, because the distance which they are obliged to travel is lengthened. Neither of these conditions is conducive to free movement of the blood-current. The obstruction thus presented is exaggerated during the menstrual engorgement, and therefore it would seem that we might



FIG. 6.

Right lateral obliquity of pelvis. (By Bernard Roth, M.D.)

count it among the causes of dysmenorrhœa, and especially of that form wherein, without evidence of organic disease of the ovaries, pain is habitually referred to the lateral regions of the pelvis.

I have examined, per vaginam and per rectum, a large number of women and girls, who have acquired a lateral obliquity of the pelvis from habits of posture, and in almost no instances have I found the uterus in the axis of the pelvis.

In the forty-two cases (notes of which I have taken), twenty-two had a *right* lateral obliquity (right hip elevated) while the remainder had acquired the opposite tilt. In every one of these cases the uterus approached the elevated hip, especially in the upright position of the trunk. Most of these women had dysmenorrhœa and leucorrhœa, and in some the condition was accompanied by more serious pelvic lesions.

A combination of the two forms of obliquity in the habitual posture of the pelvis is quite common, especially when the habit



FIG. 7.

Right lateral obliquity of the pelvis. (By Bernard Roth, M.D.)

has been acquired in standing, and the influence of both can be traced in the shape and position of the uterus.

If we admit that certain habits of posture have the power to increase abnormally intrapelvic pressure and predispose women to deformity and displacement of the uterus, it becomes our duty, it seems to me, to decide upon the best measures which can be taken to do away with this widespread and far-reaching cause of ill-health in women, and since prevention is easier and more eco-

nomie than correction, the work should begin in the home and in the school-room.

Mothers in every school district should collectively be instructed in reference to the normal position of the body in standing and sitting, and of the danger which menaces their daughters if not properly trained. Teachers everywhere should be similarly instructed and urged to enforce the adoption of right habits of posture in their pupils. Physical exercise, not only in the gymnasium but in the school-room, between classes, should be given to strengthen the muscles which hold the pelvis in normal obliquity, and which correct the tendency to lateral obliquity. A physical director (preferably a woman) should be employed by the school board of every city to measure the pelvic obliquity of all of the girls in the public schools, from time to time, so as to place those who require it under special training, which should be continued until a right habit of posture has been acquired.

Physicians and all intelligent people should exert an influence against the use of articles of wearing apparel by girls and women which engender bad habits of posture, most important of these being high heels, the corset-steel, and tight waist-bands.

School- and lecture-room seats and chairs in general should be constructed in such a manner as to aid rather than hinder the body in its efforts to maintain an equilibrium in healthful positions.

It is hardly necessary, in the light of the facts here presented, to remind the gynæcologist of the importance of training patients into right habits of posture before beginning local treatment for disease of the uterus and ovaries. Nor can we wonder at the failures we have been forced to record in the treatment of flexions, versions, and prolapsus of the uterus, when we remember how we have disregarded this important factor in their causation.

I hope the time is not far distant when a systematic use of the "pelvic obliquimeter," accompanied by corrective exercise during girlhood, will obviate the present necessity for the frequent use of the speculum and the surgeon's knife for the relief of conditions within the pelvis which interfere with the health and happiness of so many women.

TABLE OF MEASUREMENTS OF PELVIC OBLIQUITY IN WOMEN SUFFERING FROM DEFORMITY AND DISPLACEMENT OF THE UTERUS.

Case No.	Age.	Condition.	Occupation.	Height of Body (in Inches).	Breadth of Pelvis (Trochanters).	Exaggerated Intrapelvic pressure.	Deformity. Antelexion.	Displacement. Retrocession.	Displacement. Retroversion.	Displacement. Anteversion.	Prolapse of One Ovary.	Prolapse of both Ovaries.	Oblliquity of Pelvis in Habitual Posture.	General Remarks.
1	22	S.	Sewing Shop.	64	..	I	..	I	I	I	29°	Pain in sacral region since beginning of menstruation. Examined by Dr. Sims 15 years ago; has been under care of several noted gynaecologists. Small fibroid in posterior wall of uterus.
2	25	S.	..	62	..	I	..	I	I	..	..	..	27°
3	49	M.	House.	61.25	..	I	..	..	I	..	..	..	27°
4	37	S.	Teacher.	64	10.75	I	I	30°	Discomfort; dragging in sacral region several years; lifted heavy weight; pain began immediately. Pessary 6 years ago. Many years of pain and discomfort.
5	37	S.	"Sister of the Poor."	66.5	13	I	..	I	I	..	..	..	29°
6	25	S.	Service.	63.75	11.75	I	I	..	..	..	..	..	25°
7	38	S.	Dress-maker.	62	..	I	..	I	I	..	I	..	25°	Pain in sacral region 5 years, especially during menstruation. Leucorrhœa; dysmenorrhœa; genital congestion of pelvic organs. Menopause six years; pain and dragging in back most of time twenty years; pessary many years.
8	40	S.	Service.	62	12.5	I	..	I	I	..	..	..	27°
9	15	S.	..	63.5	11.75	I	..	..	..	..	..	..	25°
10	60	M.	House.	63.75	..	I	..	I	I	25°	Has worn pessaries of all shapes and sizes; hard to keep them in.
11	25	S.	..	60	11.25	I	..	..	..	I	..	..	31°
12	41	M.	House.	61.75	11.75	I	..	I	I	..	..	..	29°

13	38	S.	. . . . .	63	. . . . .	I	. . . . .	I	. . . . .	. . . . .	30°	General anemia; much headache.
14	24	S.	. . . . .	10.25	. . . . .	I	. . . . .	. . . . .	. . . . .	. . . . .	29°	Painful menstruation.
15	38	M.	House.	64.5	. . . . .	I	. . . . .	I	. . . . .	. . . . .	25°	History of inflammation after birth of child; uterus adherent posteriorly; long-continued discomfort. No pelvic symptoms; constant headache.
16	37	M.	Washing.	61	11	I	. . . . .	I	. . . . .	. . . . .	31°	Used to stand, walk, and sit tilted backward; position corrected; ovarian inflammation; removal of ovaries; great mental distress. Pelvic discomfort twenty years; pessaries innumerable; intrapelvic pressure continues.
17	39	S.	Shop.	64	12.25	I	. . . . .	I	. . . . .	. . . . .	30°	Pelvic pain since age of 17; habitual school posture with pelvis rolled backward; lateral obliquity marked. Pain in pelvis since early girlhood; examined ten years ago; diagnosis, retroversio uteri; condition continues.
18	66	M.	House.	62.5	11.75	I	. . . . .	I	. . . . .	. . . . .	26°	Out of health three years; miscarriages.
19	22	S.	. . . . .	63.75	11.25	I	. . . . .	I	. . . . .	. . . . .	29°	First symptoms appeared after attack of typhus fever.
20	44	M.	House.	64	11.25	I	. . . . .	I	. . . . .	. . . . .	25°	Anteversion present many years; intrapelvic pressure extremely well marked.
21	24	M.	House.	61.5	11.15	. . . . .	. . . . .	. . . . .	I	. . . . .	31°	
22	24	M.	House.	67.5	11.75	I	. . . . .	. . . . .	. . . . .	. . . . .	31°	
23	32	M.	House.	61	12	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	34°	

TABLE OF MEASUREMENTS OF PELVIC OBLIQUITY IN WOMEN
WHO HAVE NEVER SUFFERED FROM PELVIC DISEASE OR
DISCOMFORT.

Case No.	Age.	Condition.	Occupation.	Height of Body.	Breadth of Pelvis.	Obliquity of Pelvis.	Remarks.
1	31	M.	Actress.	62.5	12.5	37°	Slight anteversio uteri.
2	36	S.	.....	62	10.75	37°
3	25	S.	Nurse.	64	11.75	38°	
4	26	S.	Stenographer.	69.5	11.75	45°	
5	39	M.	House.	63.75	11.75	42°	
6	36	S.	.....	64.5	11.25	48°
7	26	S.	Nurse.	66	11.75	42°	
8	25	S.	M.D.	62	11.75	39°	
9	24	M.	.....	65.5	12	42°
10	24	S.	.....	63	11.75	40°
11	24	S.	.....	64	12.25	37°
12	70	M.	House.	61.25	11.25	37°	
13	28	M.	Editor.	60	11.75	38°	
14	20	S.	.....	68	12.5	35°
15	65	S.	.....	65	11.75	37°
16	22	M.	House.	63	11.	48°	
17	22	S.	.....	67	12.25	40°
18	17	S.	.....	65.5	11.75	40°

That Deadly Foot-Ball Game.¹

(Concluded from page 247.)



SETTING aside the question of scholarship, of courage, and other mental and moral qualities, it seems to us that, so far as these reports are concerned, it is shown that there are injuries, of a more or less serious nature, and that the injuries spoken of are mostly external. Dr. Loveland speaks of two cases of concussion of the brain, one blow on the head, one kick on the head, one ear-drum ruptured; but how about the injuries to the heart and lungs and internal organs? They seem to have been forgotten, and yet they are important considerations in life insurance.

Another curious circumstance is that these injuries, generally, were those which have been seen by surgeons while the youths were still at college. The subsequent information has been

¹ From the Medical Examiner.

gathered concerning permanent injuries from replies to letters and circulars. No physician or surgeon seems to have seen the players after leaving college or to have made a report concerning any injury, but the party has reported concerning himself. In other words, he has made an examination of himself and reported accordingly. His observations relate only to those things which were visible to himself. He has not been subjected to a critical medical examination in regard to his heart or lungs or kidneys, or any other internal organ, and therefore his report of himself is defective by so much. He may be the subject of an enlarged heart with the accompaniments, or of lung disease; his urine may be full of albumen; his kidneys may be degenerated; and yet, if he happens to feel pretty well, he will, as a matter of course, say that there is nothing the matter with him, for he has no means of knowing to the contrary. It is within the experience of every medical examiner who has seen these subjects that the first intimation which a person had that his organs are not in their normal condition was when told of the results of a life-insurance examination.

What would an executive officer think of an application for a policy for a hundred thousand dollars in his assurance society, based upon a medical opinion of the applicant by himself, this medical opinion touching only upon the condition of the external organs of the body, not one word being said about the condition of the brain, of the liver, the heart, the lungs, the kidneys, the presence or absence of albumen, or casts, or other abnormalities, not one word as to personal or family history in detail; if he had had a personal injury or sickness, an absence of the certificate of the attending physician or surgeon as to the nature of such sickness or injury, the date when it occurred, the duration of the illness, its course and symptoms, its results, and its probable bearing upon the future of the individual. Suppose, again, that this very estimable executive officer and insurance manager were to require his actuary and medical director to construct an experience table upon which to base the probable duration of life, such as would enable him with safety to assume liabilities amounting to millions upon millions of dollars, upon hundreds of thousands of lives, would he, in the first place, accept such a foundation for an insurance contract, and, in the second place, would he accept the indicated results of his officers as a safe foundation for his business structure? And yet that is just what we are virtually asked to do.

It seems to us that the practical way of ascertaining the permanent effect upon the physical well-being of a foot-ball player is not to ask *him* what effect it has had upon himself, for, as a general thing, the answer will be found to be an optimistic one, but to have each man who has been out of college a sufficient time examined systematically by a competent examiner, who shall make inquiry according to a prescribed formula, so that certain data may be secured and certain results ascertained. No other investigation will be of any worth, and such an inquiry will place the question in a position where a satisfactory conclusion can be arrived at.

After all, what will such an inquiry amount to so far as insurance is concerned? Companies do not decline applicants because they have been athletes, but they examine them thoroughly, as in the case of other applicants, in the regular way. There is no discrimination against athletes,—as a class,—but, knowing that undue exertion in many cases injures the heart and other portions of the body, it is the duty of the examiner to bear this in mind when examining an athlete, in order to eliminate that possibility. If it is found that the individual has injured himself organically, it is the duty of the underwriter to take action accordingly, in the interest of his company.

The book, as a book, is interesting, for it discusses a timely subject. It gives many facts and figures which are very interesting to foot-ball men. It should have a large patronage.

Meantime, the game will go merrily along, maiming and killing, depriving many parents of their hopeful ones. We can not, during the season, take up many daily papers without reading of foot-ball casualties. Our esteemed medical contemporary, the *Lancet*, keeps a running record of them in England. For instance, its issue of October 20 records three deaths and four fractures as the result of the previous week's play; in its issue of October 27, one dislocation of the shoulder and one fracture of the leg; issue of November 3, it says that on October 25 a trooper of the Royal Horse Guards sustained a compound fracture of the left arm; on Saturday previous to the issue of the number, the following accidents occurred: One dislocation of knee, one "seriously injured" and came to the infirmary, two fractures of the legs. In this country a son of a government inspector-general of the United States army sustained a serious injury to the spine. A young student in Connecticut is reported to have been injured so seriously

that he is not expected to live; has had five hæmorrhages up to the time of the report. We read in the dispatches that a certain captain of a college team is alleged to have so far lost control of himself that he "deliberately kicked" a member of the team. The party kicked is said to have withdrawn from the team shortly after, and concluded that he would devote more attention to his studies than to athletics upon the foot-ball team hereafter.

We are further told in the public press that on or about November 3, certain members of a prominent Christian association and a college team in a neighboring city engaged in a "game," which ended in a most disgraceful fight between the players of the two teams and a portion of the 3000 spectators assembled. One of the players knocked another to the ground, and while down kicked the prostrate person several times in the face. In a moment the fight was in progress between the players, many of the spectators crowded into the field and joined in the fray. The police were powerless to stop the fight. Several of the players on both sides, it is said, were badly used up. The directors of the Christian organization have decided to disband the team on account of the disgraceful affair.

Then comes the dispatch taken from the *Commercial Advertiser* of November 14.

"FOOT-BALL TOO BRUTAL.—Baltimore's Druid Hill Park Board refuses to allow games there. Baltimore, November 14.—The Druid Hill Park Board has decided to allow no more foot-ball games in the park, on account of too frequent exhibitions of brutality, and also because the large crowds attracted to the games block the driveway."

Finally, the Naval and Military Academies wished to play a game on Thanksgiving Day and referred the matter to the proper authorities, and, according to the dispatches, General Schofield is said to have used the following language as an endorsement of the request:

"The game of foot-ball as recently played requires some essential modifications. This, I believe, is the concurrent sentiment on the subject. The required modifications will be difficult to enforce, for the reason that the objectionable features are those which contribute most to success in a contested game. They are those features which are most dangerous to life and limb and may be said to most resemble military operations. They are none the

less objectionable on that account. While it is undoubtedly true that experience in actual war is the best possible training, modern civilization does not permit the making of war simply for the purpose of training an army. For like reasons the practice in peace of those operations which most resemble war must be condemned, notwithstanding the fact that they are manifestly beneficial as military training."

The permission was not granted.

P. F. Harvey, M.D., major and surgeon, United States army, in a communication to the *New York Medical Journal*, September 29, 1894, calls attention to the dangers of the game.

Speaking of West Point, when the game, he says, was sanctioned by the authorities, notwithstanding the large number of cadets who were injured in match-play, *it was yet condemned as an extra-hazardous game by a standing order requiring a surgeon and an attendant and dressings and restoratives to be present at every game; and, he adds, their services were usually required.*

What is the difference in this respect between a contest in the prize-ring and on the gridiron field?

The doctor further writes, after enumerating various interesting data: "The foregoing does not end the indictment against the dangers of the game. A volume could be filled with the adverse testimony and warnings that have been written and spoken by all classes in all parts of the country. It certainly appears that the weight of impartial opinion having the good of the rising generation at heart is opposed to foot-ball on account of its perils. From this stand-point, in my opinion, the game as played last year is indefensible. It has been tried, convicted, and sentenced at the bar of public opinion, and if it starts again in its career of slaughter," the writer concludes, "it only remains to have it interdicted by the courts."

This is strong language, but none too strong if the contingency arrives to which he refers.

In an article attributed to the *Lancet* we find a letter is quoted from a correspondent to that journal, who says he would rejoice if accidents due to foot-ball were less frequent, and he feels sure that they would be if, among other suggestions, this one was carried out: "*Let players wear tennis shoes and not boots with steel plates inside the toes, as I know the modern boots are now made.*"

The editor says it is not sensible: (1) Because nailed and steel-shod foot-gear is not permissible by the laws of the game; and (2) because India-rubber soles would practically alter the game.

What we want to know is, how much truth is there in the suggestion of this correspondent? If steel-loaded shoes are permitted, is there any use in denying the brutality of the game? and is there any reason why serious acute injuries should not be experienced, in addition to possible permanent lesions?

Judging from the usual number of accidents reported, the new rules do not seem to have improved the game to any great extent, and the assertion that they will not improve the game is likely to be abundantly fulfilled. In the words of W. C. Whitney of *Harper's Weekly*, "It [the game of foot-ball] may be, and in some instances has been made brutal, but the same men could make any game brutal."

Since writing the foregoing, events upon the foot-ball arena have crowded one another in such number as to make it difficult to keep pace with them. We will briefly chronicle some of them as they pass before us in the daily prints.

At Shrieve, Ohio, a boy, 19 years of age, received injuries from foot-ball which resulted in his death. Spinal column fractured.

Same date, dispatch from Little Falls, N. Y., a student of Fairfield Seminary reported violently insane as a result of injury to head. Taken to Utica Asylum.

But the game of all games in this country, and about which so much has been written, occurred at Springfield, Mass., between Yale and Harvard. Mr. W. T. Bull, of New York, who is advertised as an authority on foot-ball matters, in the *Mail and Express*, states the casualties to be: Yale, Butterworth, severe injury to eye; Murphy, kick on head, resulting in his being sent to the hospital in an unconscious state; Thorne, kicked on the head so that he lost all track of what the signals meant; Jerrems, kicked on the side so severely that he had to retire; Captain Hinkey, so badly used that, according to his statement, not a square inch of the body was free from painful bruises. On the part of Harvard: Wrightington, a collar-bone broken (this was afterwards reported to have been dislocated); Brewer, an aggravation of weak ankle; Hollowel, a broken nose.

Mr. Bull, who generally writes in a most beatific strain about the beauties of the game, and in the highest praise of almost every one connected with it, so far lost his happy balance as to comment most severely upon the conduct of the players. He, however, was exceedingly mild in comparison with the comments of the press and of the public.

ACCIDENTS AND CASUALTIES.

We have received through the courtesy of an insurance friend, and a prominent underwriter of Boston, copies of the papers published in that city on the days following the game. We have room for only the headings, which show the feeling and excitement then prevailing. The *Boston Daily Advertiser*, of November 26, heads its account as follows: "Disgraceful Foot-Ball. Spectators of the Springfield Game Disgusted by the Brutality of the Players." It further states that Harvard is likely to investigate. Its opening sentence is: "The brutality and accidents of the Yale-Harvard game at Springfield were probably talked about more in Boston than any other topic. In no other game in the East or the West has there ever been in this country such a disgraceful exhibition."

The *Sunday Post* of the same date characterizes this game as most atrociously brutal throughout. It begins its article by enumerating the casualties as about the same as above stated. The statement was made that contestants quickly recovered from their injuries and were as good as ever. This, however, was not the case with the Harvards at least, because at the game on Thanksgiving Day at Philadelphia, between the Pennsylvanians and Harvard, the former club won by 18 to 4, and six of the Harvard players were carried off the field, the excuse being that they were participants in the Springfield game and had not recovered from its effects. Two of the Yale men, also, who played in the Springfield game, were carried off the field on Saturday, December 1 (*Yale vs. Princeton*). These failures show a physical weakness which is significant.

Continuing our chronicle of individual accidents and casualties, spinal injuries, concussion of the brain, etc., *ad nauseam*, would make our account too extended. We will therefore occupy a brief space with the echoes of the game.

It is reported that the college faculties will take up the question of foot-ball in due time; and Dean Murray, of Princeton, is alleged to have expressed himself as follows:

"What do I think of the charges of brutality at the Springfield game? Why, the game was a grievous disappointment to me, for I had expected that the new rules of more open play would have effected the desired reform. Certainly that was a most degrading spectacle, and there should be no more such

exhibitions. No, I would not favor prohibiting the game on Saturday, for the arrangements have all been made, hundreds of people are calculating to spend the day in New York and at Manhattan Field, and such a course would cause endless trouble.

"But I do say that there should be no further intercollegiate foot-ball until the college authorities receive sufficient guarantee that the games will be manly exhibitions of true sport, in which slugging or brutality shall have no part. If there is no remedy, then the game should be prohibited.

"I am not an expert, and I cannot suggest just how the reform may be brought about, but I am convinced that it must come, if the prestige and standing of our American universities are to be maintained. I have given the matter of ways and means no thought. The evil is before us and must be squarely met. It has been shown that the revised rules of this season, which we were assured would obviate all brutal elements in the game, have not accomplished their avowed purpose. There has been an improvement, I will admit, but it has not sufficed."

There is a communication in the *Sun* of November 29, signed "A Graduate of Amherst," entitled "A Plain Statement about Foot-Ball," in which, among other things, he says the games are mere pugilistic contests, encouraged by the universities for advertising purposes. "They allow foot-ball players," the writer says, "to slide through their studies, and they connive at the bringing into colleges of professional players, men hired to play foot-ball, who are no more students than horses are."

POLICE VIEW OF THE GAME.

Then came the announcements in Friday's and Saturday's papers that Inspector Byrnes ordered "No brutality." He is alleged to have used the following language: "There is no violation of law in playing a purely scientific game of foot-ball, but when it degenerates into an exhibition of brutality in which the players adopt prize-fighters' tactics and maim each other, it becomes a violation of the law. I don't propose to permit such an infraction. The games in the past have been nothing more or less than what can be termed brutal exhibitions; science has not figured at all, and the players took the part of brutal prize-fighters." The officer's orders were "that if, during the progress of the game, it should develop into a brutal conflict between the two teams," the police should interfere and stop the game and

prevent any further play. About 300 policemen were provided on this occasion, and, we are told, there was no brutality!

Can any reasonable human being, in the face of all this evidence, which is the public property of to-day (and if reports are not true they should be corrected), deny that the game, as played this season, is dangerous to both body and mind; and does it not, as such, render the applicant who is a participant uninsurable? And further, is it not incumbent upon the examiner to inquire most assiduously, in the case of an applicant who has ever been a football player, whether there are remaining any effects upon the body, especially of the various "systems": as nervous, circulatory, respiratory, etc., which are calculated to shorten his expectancy?

We will not comment upon the college aspect of the game. Certainly the innuendoes and insinuations thrown out as to the good faith of the governing bodies ought to be stimulants enough to cause a thorough inquiry and reform. As the game stands to-day it has received what is universally characterized a "black eye." We hope to be able to chronicle an improvement during the coming year in this most noble game when rightly played.

COMMENTS OF MEDICAL PRESS.

Following are comments of the medical press upon this subject:

"We must confess to a distinct disappointment at the way in which the Harvard-Yale game of foot-ball at Springfield was conducted this year," says the *Boston Medical and Surgical Reporter*. "The promise of reform in rules and discipline has not been kept. The number of disabled men was unusually great, and there were several serious injuries; that these were in every case the result of 'accidents' it seems to be difficult to admit. The rules may be amended to any extent, but it profits nothing if they are not or cannot be enforced. The penalty for slugging or for purposely attempting in any way to injure an antagonist cannot be too severe or too severely enforced, if this game is to be continued as a competitive sport among college men. That a player may with impunity jump on an antagonist prostrate on the ground with the ball, after the whistle has been blown, and dislocate his victim's clavicle, should be an impossibility. What the umpire does not see, however, is supposed not to occur. In so far as the umpire is blind he may, at least in that particular, be said to be a representative of justice; the best pair of eyes

may really miss some of the incidents of the gridiron. Had the penalty of disqualification, however, been rigidly enforced from the beginning of the first half of this game, there would, we are convinced, have been fewer subsequent 'accidents.' "

"The events of the past week have most thoroughly discredited the game of foot-ball as at present played," says the *Medical Record*, of December 18, 1894. "The contest at Springfield between the Yale and Harvard teams was one of the most unwholesome performances that ever masqueraded under the name of amateur sport. Players slugged into unconsciousness, eyes nearly gouged out, brains concussed, disabling sprains and bruises constantly interrupted the progress of the game, which even an ex-ball-player and friend of the sport declares to have been characterized by 'sickening brutality.' Besides this, we hear of a student made insane through injuries received in playing, and two fatal accidents are reported. The number of young men who are permanently injured and who go through life more or less crippled in consequence of foot-ball playing can never be known. We should be sorry to see foot-ball abolished altogether from our colleges. There is no game that equals it in many ways when played as a manly sport and not for gate receipts. But the new rules are plainly ineffective, and unless some change can be made the game really deserves to be placed under the supervision of Boards of Health working in co-operation with an efficient police."

A Case of Longevity.

According to the *Lyon Médicale* there has just died at Saratov, Russia, at the age of 125½ years, a veteran of the campaigns of Napoleon I. This remarkable personage, Lieutenant Nicolas Savin by name, was born in Paris in 1768, enlisted in a regiment of hussars in 1798, and took part in the most important campaigns of the Consulate and the Empire. Having been taken prisoner by the Cossacks during the retreat from Beresina, Savin took up his residence, eighty-two years ago, at Saratov, where he was married, and lived during the last years with his 82-year-old daughter. In 1887 the Czar, Alexander III, made the old soldier a present of a thousand roubles.

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year free.

Buried Alive.

PERSONALLY, we do not believe that any one has ever been buried alive, with subsequent, even momentary, restoration to a consciousness of the situation. We can imagine that, in the panicky haste accompanying devastating epidemics among an ignorant or semibarbarous people, it is possible for some to be buried while the last spark of vitality still smoulders, but that there is ever a subsequent restoration to a conscious appreciation of this fact seems to us a physiological impossibility.

This fact is a firmly fixed one in our mind, but we are not forgetful that a distinguished authority on insanity declared, some years ago, that "*any person who is so firmly convinced of anything that he is not open to argument thereon is insane,*" and, not wishing to be classed in the ranks of the insane, we are willing to listen to arguments or facts tending to disprove the accuracy of our mental condition in reference to this question. Mr. George T. Angell, who is the president of the American Humane Society, is a man whose personality and whose life-work command respect, and we learn that he has sent the following to the legislature of every State: "It is well known to the American press that many persons—and how many no one can tell—have been buried alive. The father of the undersigned came very near being buried alive, being declared by his physician dead, and all preparations made for his funeral before he could give visible signs of

life. The object of this petition, which I hope you will cause to be properly presented, is to call public attention throughout our entire country to this important subject, and I take pleasure in sending a marked copy of it to the editors of every American newspaper and magazine north of Mexico, asking their assistance."

We cordially co-operate, first, to ascertain whether that which Mr. Angell assumes (and which we question) is correct, and, secondly, if it is, to secure legislation that will render it impossible. To definitely settle the first point, we solicit, *not expressions of opinion* nor the repetition of historical myths, but *substantiated facts*, if any there be, tending to show that any one has ever been buried, supposed to be dead, who subsequently became conscious of his condition.

The Lesson of the Premature Death of Richard Vaux.

THE use of the word *premature* in connection with the death of a man in the seventy-ninth year of his age may cause a smile until it is qualified and explained. For the information of those of our readers who do not reside in this portion of the country, we must explain that, for more than half a century, Richard Vaux was the best known, most universally respected, and most picturesque of Philadelphia's citizens.

His mother lived for ninety-four years ; hence we speak of his death at 79 as *premature*; he inherited from his mother a magnificent heritage of vital force ; instead of increasing his vital capital and dying physically richer, so to speak, than he was born, he made unnatural demands upon this inheritance and thus used it up prematurely. Mr. Vaux believed in the gospel of health, but it was a belief rather in *rugged* than in *conservative* health. Endowed with splendid vigor, with sound, healthy organs, his life was one of constant, ceaseless, physical and mental activity. He believed in the "hardening process," and literally practised it : muscular exercise ; fresh air ; a disregard of the effeminacies of fashionable life ; a manly, honest, vigorous life, this was his idea ; this was how he lived, and a too prolonged adherence thereto was why he died *prematurely*.

Mr. Vaux did not squander his inheritance of vital force ; he did not abuse his physique ;¹ he did not neglect his health, in the

ordinary acceptation of these expressions ; but he did fail to grasp a great truth in the science of longevity, or, having grasped it, he failed to practise it ; *he did not whistle down brakes when he reached the fiftieth mile-post on the railway of eternity.*

The lesson of this "grand old man's" death, at an age less by fifteen years than that at which his mother passed away, is that, if when a man reaches forty or fifty years he does not modify his methods of life to conform with the physiological changes that are going on within him, he must die *prematurely*.

Prior to this age there is a physical resiliency, so to speak ; there is, in the strong and healthy man, an excess of recuperative power that will enable him to make, with comparative impunity, excessive demands upon his vital strength ; but it would seem that when the age of forty or fifty years has been reached this recuperative faculty is less pronounced and less able to meet demands.

One week before his death, to those who had been accustomed since childhood to his striking and impressive personality on the streets of this city, Mr. Vaux was as hearty and vigorous as ever, good for twenty years of life. He exposes himself to inclement weather, undue exertion, and fatigue ; he makes a demand upon his recuperative force which it is unable to meet, and he dies, not because his organs are diseased, but because he is asking them to do more work than is compatible with their physiological age and condition. He was running on fast express time with an organic machine that should have been transferred to a branch road, with short hauls and frequent rests, thirty years ago ; Mr. Vaux was a grand, rugged, honest, typical *man*, but he was a thoughtless, careless engineer.

That which has happened to Mr. Vaux at 79 is daily, hourly happening to men and women at 60, and upward, without attracting much attention. The simple fact of the attainment of sixty years of life argues for an inheritance of vitality that will promise many more years of life, if the methods of life be properly regulated. The influence of heredity plays too important a part in the average deductions on longevity ; *long-lived ancestry, long-lived progeny ; short-lived ancestry, short-lived progeny ;* this is the whole doctrine of longevity in the average mind, but it is erroneous ; heredity is a factor in longevity, undoubtedly, and a very potent one, but it is not the beginning and the end.

Fashion and Babies.

WE are continually harping upon "*Fashion*," because we are so firmly convinced that "*Fashion and Physical Welfare are antagonistic*," and because we note, with a feeling akin to awe, the daily-growing controlling influence of fashion over humanity. Reproduction is a natural law of all organic nature, from the minute grain of mustard-seed, from the invisible disease-germ, from the ant, the fly, the leaf, the tree, up to the mammoth beast that roams the jungles of India.

Reproduction is a necessity in Nature's beautiful design of the evolution of organic matter; the most marvellously beautiful and divine attribute of organic matter is its power of reproduction; yet in the human species (and in this species alone) do we daily see becoming more and still more evident the introduction of art to nullify the reproductive process. Fashion does not favor human reproduction, and, as is always the case, in any contest fashion is the victor; reproduction must go, and is going, but outraged nature is having a frightful revenge in the almost universal chronic ill health and "*NERVES*" of the fashionable women of these closing days of the nineteenth century. Maternity is not fashionable; maternity interferes with the duties of fashionable life, and maternity must not, therefore, be thought of.

Babies are "*dear, cute, little creatures*," and, could they be bought or "*won at raffles*," made to suit the fashionable taste, and two years old, every household would have some of them; but, as it is, "*babies must go*," or rather stay where they come from, as Nature's method of producing them is not convenient to the fashionable women.

A physician, who comes daily into contact with the young married women of these days, is continually wondering "*why women marry*," for, in most cases, it is plainly evident that the fear of motherhood is a spectre constantly worrying these young women. It is hard to write dispassionately on this subject for one who sees and feels (as the physician does) the physical and moral degeneracy that this "*Fashionable Anti-Maternity Mania*" is working and must work upon humanity. Our warning will fall on barren ground, of course (barren brains and barren wombs), but it is our duty to utter it.

Society and Health.

APPROPOS of the foregoing, a few words upon "Society and Health," but only a few, because there is no scope for discussion, a *fact* only can be asserted.

It would not require much space or many words to prove that four times two are eight, because such is a fact, beyond the province of dispute.

Unwelcome as the assertion may be to our young readers, we must yet emphatically announce to them the fact that *fashionable society* of to-day and health are incompatible.

We are sorry to feel obliged to say this, because most young persons erroneously think that there is a great deal of pleasure in "Society," and look forward to their entrance within the magic portals with wonderfully rosy anticipations. It seems a pity to say anything that will dampen these ardent spirits; but were we to remain silent on this point, we would justly deserve the reproaches that might be heaped upon us by those whose health had been ruined by "Society," when, having reached mental maturity, they look back upon the physical mistakes of their early lives.

Clearly understand that we do not mean friendship, sociability, comradeship, or social intercourse, when we speak of "Society;" but that we are to be understood as referring to the dissipation, loss of sleep, irregular eating of unhealthful food, improper methods of dress, unnatural and excessive excitement or stimulation, and corresponding depression, the indolence and neglect of exercise, and the thousand and one accessories of "*fashionable Society*."

It is evident to any thinking person that the most healthful mode of life is that pursued by religious communities; let us take this life as one type, and the life of the fashionable society man or woman as the other. Your own observation will make it evident that these two types are diametrically opposed to each other. I am not advocating or recommending individual seclusion; far from it; there are no more social, companionable, genial persons in the world than members of religious communities; they are by no means the melancholy, dejected recluses that those unfamiliar with them imagine. All the healthful pleasures of the world they enjoy; it is only the artificial and deceptive *seeming* pleasures that they avoid.

The late Dr. D. Hayes Agnew very truly said that "there

is no tyranny more exacting or despotic than that exercised by the conventionalities which govern our living. Beyond all contradiction, the behests of fashion are vastly more influential in governing public conduct than any arguments drawn from the teachings of structure and function."

We full well realize the truth of what this eminent man has said, and we will not waste time, ink, and paper in writing further against "Society." Your own judgment and reason will tell you that, if you wish to follow the advice and teaching of this journal, you cannot participate in the follies of "fashionable Society;" if you decide to do otherwise, you *must* accept the *inevitable* penalty of ill health and premature death. With this unquestionable assertion *we will drop* the subject.

Will a Chemical Examination of Grain Forecast the Quality of Flour to be Made Therefrom?

EDITOR, ANNALS OF HYGIENE:

THE following question has been asked us by a miller, and we are unable to answer it:

Will a chemical examination of samples of grain enable me to tell what quality of flour, for bread, can be made from the grain?

We do not know what chemical work has been done in this direction, and are unable to find any references to the subject, if any work has been done.

Can you give us any information on the subject, or advise us what authorities to consult? Thanking you in advance for any answer, we are

Yours truly,

SHARPLESS & WINCHELL,
Minneapolis, Minn.

This query was submitted to the distinguished chemical expert, Professor Henry Leffman, of Philadelphia, and we append his reply:

DEAR SIR,—No doubt, in some cases, a chemical examination of grain would show that it was unsuitable for use, but in the sense in which the correspondent intends it, I doubt if chemistry could aid. Still, experts have accomplished much, and I will not be too positive. I should think that in Minneapolis, if anywhere, such points would be known.

Yours,

H. LEFFMAN.

Stewed and Baked Beans as Cathartics.

MR. N. A. WHEELER, of Alpowa, Washington, states that it is a well-known fact that if stewed or baked beans are eaten after they have commenced to ferment they will then act as a most powerful and painfully griping cathartic.

Has it been positively determined what that toxic active principle is?

"I am not a physician," says Mr. Wheeler, "and wish you would give the above some study and investigation concerning what is certainly known in regard to it, and reply in an early number of the ANNALS."

We would be glad to have some information on this subject.

How to go to Sleep.

"If you have never done so, watch yourself go to sleep," said a Delsarte teacher, "and you will be amazed to see how tense your position is. Your knees are drawn and bended, your back is curved, the arms are *held* more or less tightly to the body, and the fingers are folded. The eyelids are *held* shut, not allowed to droop over the eyes, the neck is strained, and the head seems to touch the pillow only at the temples. The points of contact with the bed are really at the temples, shoulders, hips, knees, and ankles. Now look at a child sleeping. Every muscle is relaxed, every joint is inert and prone on the couch; his little frame finds rest at every point. The features are undone, so to speak, the nose widens, the mouth droops, the eyelids close easily; and with every line of expression obliterated, he finds utter and complete repose. The abandon makes him fall out of bed sometimes, such an inert body has he become. You may imitate him even to that degree, if necessary. Begin at your toes to relax, loosen all your joints and muscles, unbend your fingers, shake your wrists loose, take the curve and strain out of your neck, go all in pieces, in fact, and see how the day's fatigue seems to slip off from you, and the gentle mantle of rest and oblivion to enfold you like a garment."



The Influence of Boiling Water.

We are accustomed to be told that the most impure water will be rendered pure by boiling, and that in this we have an absolute safeguard against the dangers of water containing disease-germs. Now, while it is true that boiling will kill the germs of disease, yet the fact has been brought to our notice, by so high an authority as Dr. Charles M. Cresson, that, while boiling kills the germs of a particular disease, it yet, in reality, renders the water more impure than it was before, because, by the very death of these germs, dead organic matter is allowed to remain in the water which it pollutes by putrefaction. Hence, while boiling is a most excellent precaution against the occurrence of typhoid fever or similar diseases when we have occasion to think that the germs of these diseases exist in the water that we drink, yet we must remember that this boiling does not purify the water; it simply removes from it the specific power to produce a specific disease.

Club Towels.

It is the general practice in the better-class clubs to provide an unlimited supply of towels. Each time a member washes his hands he uses a clean towel. As a rule, in wiping his hands once the towel is barely, if at all, soiled. It cannot be expected that under these circumstances the towel will be properly washed. There is nothing to wash. It suffices to dip the towel in some water, to dry and iron or mangle it, and to all appearances it is again fit for use. Would such a perfunctory performance suffice to cleanse a towel? Indeed, it raises the suggestion whether towels used in restaurants, clubs, etc., should not be disinfected as well as washed. Of course we presume that no one would knowingly go to a club while suffering from an infectious disease; but it sometimes happens that a person is in an infectious condition without being aware of the fact. Moreover, infection of towels may occur, and it would be much more satisfactory to know that they were thoroughly disinfected as well as scalded and

scrubbed. Boiling water may be considered an excellent disinfectant. If in the light of modern bacteriology the immersion of linen in boiling water during the process of washing may not always be of sufficient duration to destroy every known germ, the boiling of linen nevertheless does afford a certain degree of protection against the seeds of disease ; but the towels of high-class clubs are generally so clean when sent to the laundry that they are apt to receive less than the usual amount of scrubbing and boiling. There is a virtue after all in dirt if it insure a thorough cleansing, and a really dirty towel is likely to be more thoroughly washed and cleansed than a comparatively clean one.—*The Lancet*.

Health Habits of Thomas Jefferson.

A contemporary, the *Journal of Hygiene*, some time since called attention to the personal habits of Thomas Jefferson, as ascertained from a letter written by him and published in 1841. Among other things Mr. Jefferson says,—

“ I live so much like other people that I might refer to any ordinary life as the history of my own. I have lived temperately, eating little animal food, and that not as aliment so much as a condiment for the vegetables, which constitute my principal diet. I drink the weak wines only ; the ardent wines I cannot drink, nor do I use ardent spirits of any kind ; malt liquors and cider are my table drinks ; and my breakfast drink is tea or coffee. I have been blest with organs of digestion which accept and concoct, without ever murmuring, whatever the palate chooses to consign to them, and I have not yet lost a tooth by age.

“ I was a hard student until I entered on the business of life, the duties of which leave no idle time to those disposed to fill them ; and now, retired, and at the age of 76, I am again a hard student. Indeed, my fondness for reading and study revolts me from the drudgery of letter-writing, and a stiff wrist, the consequence of an early dislocation, makes writing slow and painful. I devote to sleep from five to eight hours, according as my company or the book I am reading interests me, and I never go to bed without an hour or a half hour's previous reading of something moral, whereon to ruminate in the intervals of sleep ; but whether I retire early or late, I rise with the sun. I use spectacles at night, but not necessarily in the day, unless reading small print. My hear-

ing is distinct in particular conversation, but confused when several voices cross each other, which unfits me for the society of the table. I have been so free from catarrhs that I have had one, on an average, but once in eight or ten years through life. I ascribe this exemption partly to the habit of bathing my feet in cold water every morning for sixty years past. A fever of more than twenty-four hours I have not had more than two or three times in my life. A periodical headache has afflicted me occasionally, once, perhaps, in six or eight years, for two or three weeks at a time, which seems now to have left me; and except on an occasion of late indisposition, I enjoy good health,—too feeble, indeed, to walk much, but riding without fatigue six or eight miles a day, and sometimes thirty or forty.”—*Good Health*.

Walking as a Pastime.

Eugene Lamb Richards writes a paper in the August number of the *Century* on “Walking as a Pastime.” He thinks this is one of the most interesting, healthful, and economical ways of spending a vacation, and he gives a number of valuable hints to those who have had little experience in tramping. Mr. Richards says,—

“This mode of travel, besides being independent, has other advantages. No great preparations are needed for a trip. A vacation of a few days can be utilized by a man’s swinging his pack on his back, and going off into the country. Owing to the continual change of abiding-place, in three days, it often seems as if the traveller had been absent a week.

“Another advantage is the light expense. In all other travelling trips the cost of mere locomotion is a great item. By walking, the change from place to place is made without paying any railroad or steamship fares, without paying any expressman or hackman, and without any of those unavoidable expenses which often make the cost of a trip a matter of anxious thought.

“The greatest advantage is the tonic effect on the body and mind. This is due to the freedom from care, and to the natural life,—the continual exercise in the open air, which stimulates the appetite, and causes a great demand for food. The amount of food consumed on one of these trips is generally three times what is taken at home. The stimulating action on the skin, by the con-

stant flushing of the pores in consequence of the exercise, and the baths required to keep one clean, bring into a state of healthy activity a part of one's system generally neglected by those living sedentary lives. In the coldest winter weather I often find, on closing a day's tramp, that my undergarments are wet with perspiration. Then, too, fatigue brings good sleep. Thus, with exercise, good food, free perspiration in fresh air, and plenty of sleep, a man takes nature's best tonics.

"It must not be supposed that these tramps exercise only the legs and feet. If one carries a pack, the upper part of the body, and especially the muscles which hold the shoulder blades, are thoroughly exercised. The back and the abdomen come in for their share, so that when the trip is over, and one goes about without his pack, it is not very hard to walk erect."

Brain-Work and Vitality.

As a factor in longevity, the *London Speaker* calls attention to the fact that those people who have been accustomed to the continued disciplinary use of their brains daily, and who have thus placed their nerve-power under a highly developed condition of constitutional training, are enabled by these very means to escape the so-called early decay, and to avoid those alarming accidents to health from which so many apparently healthy men succumb. People who use their brains and observe ordinary hygienic care of their bodies, resist diseases in the first place; and when they are actually ill, they prolong their lives or recuperate sooner than do those who have lived less intellectual lives. Thus there is given a new force to the assertion that you may kill a man with anxiety very quickly, but it is difficult to kill him with work.

Whether the brain can actually give power to the muscles is not certain, though the enormous strength sometimes developed in a last rally looks very much like it. That it can materially affect vitality is quite certain, and has been acknowledged by the experienced in all ages.—*Sel.*

The Present Condition of Society.

The Italian poet, Corrado Capadino, condenses in a few words his ideas of the present condition of society, and the way to that improvement for which the socialists of the last half cen-

tury have been striving to obtain the clue. "The present society," says the poet, "consists of two kinds of the degenerate. The first class eat too much and work too little, and the second eat too little and work too much. If it is possible to bring about a compromise between the two classes, the physical and moral welfare of mankind will be promoted, and a higher race, from a physiological point of view, will be produced." The great trouble is, one class eat and drink more for the pleasure of eating and drinking than from any special thought of the nutriment the food contains, or its adaptability to the actual work of life. The kitchen is the workshop of the artist and the poet, where is prepared the menu which tickles the palate, and brings out the witty remarks of the dining-room. Close thinkers and hard workers eat to live and to work, and the real substantial work of the world with brain and muscle and nerve is accomplished by judiciously feeding the body rather than by constantly exciting the faculties by stimulating the senses.—*New York Medical Times*.

Ventilate Closets and Wardrobes.

After you read this little paragraph, put down the journal for a moment and open your closet or wardrobe door, and, if your sense of smell is as accurate as it should be, you will be prepared to believe us when we say that the average closet and the average wardrobe do not receive the ventilation that they should have. Remember that the dead tissue from the surface of your body clings to your clothing, and that when you put soiled clothes into your closet or wardrobe you are putting away with them small particles of identically the same matter that you place six feet under ground in a coffin when you bury a corpse. That is to say, in the former case you have particles of organic matter undergoing decomposition, so small, it is true, that they are invisible to the naked eye, yet none the less there; while in the latter case you have a large accumulation of particles undergoing decomposition, such a great accumulation that it becomes obvious to our sight. However, the result is the same in both cases, the difference being one of degree and not of kind; hence, since we have dead organic matter undergoing decomposition in our wardrobes and closets, does it become very necessary that we should allow a pure atmosphere access thereto.

Singular Sanitary Appeal From the "Cole Ridgens" by a Pennsylvania Dutchman.

From "Dutch" Pennsylvania the State Board of Health has received a letter from which Artemus Ward might have taken a spelling lesson. It conveys an instructive idea of the conceptions formed by the Pennsylvania Dutch mind of the mysteries of the English language, while it shows how sanitary ideas are spreading through the backwoods, and imparts a hope that the leaven of intelligence in the mind of the "millride" who is the author of the letter will spread till it leavens the entire lump of the community he lives in. With an occasional interpolation the reader may be able to decipher the extracts from the communication, which are given *verbatim et literatim*, but not *punctuatim*, for there is no punctuation.

"I think," says the writer, "the coutry peepl and the bord of hiltb out to eunite togettor for to stop the ruination of spoiling the waters with doseasse. What doo you think about it? Wid deir bad water tha bring on a good 'eal of sickniss to human and beasts. I urite to see what you haf to say about id.

"All ready near machanoy citty, where dey haf a good deal of nead of water now, and in the Shenandoah colerys and cole ridgens, some had bild thair slodder houses ofer the streams and throad the endrails and offallings into the water."

Continuing, the writer complains of the method of "washing the cole at the brakers," much being done that he thinks "intierlerly onnesserry." "If," he says, "they should leaf tha cole drop, after broken in the braker, throw a blast of wind of good pauer (the German sound given to 'au' will solve the riddle of the last word) and then throw a flore to the slate pickkers, it maks miser cole and it is not as hard on the pickkers, spezzly in winder, and the peepl whuld git thair wait of cole, for I helpt holling ameny tonn of water from the braker that was frozin in the cole, and in sommer the cole don't hold out at the braker for it is water in, yes it is a good 'eal water sold in cole."

A class of capitalists described as "cole obbradors" come in next for a lashing, and there is some learned discussion on the treatment of "cole" at the "mind," and the letter passes on to the effects of the "cole dosd" in water. He remarks,—

"You can't wash of your glose, even you can't wash your feet clean, you most hafe oter water if you git your feet dipt in the bad water and it spoil all the wimmens wash plases along the

streame, and it dos kill all the fish in dose streams and all oter anmele thad leves in, and it eat up all ioron, it eat de godggens dat rons in water and it cuts out all the boxes, so thad you cand keep dem in repair, and if it is a cast water whele it vill cut it op in 9 month time with (which) ust to last 20 year afore, and if you make a whooodden whele the roff cole dost dad drifts all time cuts it out in a short time. I am a millride. I know all dis. You cand keep a forebay thad is not (?) spiled. You cand keep no fas'ing a round a gade, it eats of the nails, and you cand pinn soch small stuf as dad to hold, and whair it is to repair ennything in the forebay you must first lefe the water in a cobble (couple) times in, and take a scupe shovel and frow the water all over about for to wash oud de bad stoff and then it is hartly fid yet for you to goy in, and if you goy in and work in your close you nefer gid dem clean more.

"Coxe Broders operaded 2 years on green mountain without killing the fish out the towickken crick for tha' had build dams to catch the dosd (dust?) and lately they vent attet (went at it) and dicht the dam threw and lefe the cole dosd run in the crick. How you think the peeple can keeipe deir kattel when worter is oud at home? Coxe Broder where sorft a inchunchion on by the inhapidents of dis crick before he a had his braker build. So the vill now kill all the fish and drift op de mill dams and rases, that have no power more vith de nosd (dust)." In closing a serious evil is taken up thus: "Anoter trobles is thad some bild over good waters their sespulls with (for which) is bad and on hilfy, I know; tha gris' millers pleat with dem bot it iss no use; dey say 'Freea coundry.'"

In commenting on this the writer says that his "fater," who "leafs" 1 mile below, has lost "fore horses" "with whea think got dar sickness threw dat filfy water."

He appeals in conclusion earnestly to the State Board to interpose for the good of the community.

His chirography, etymology, and rhetoric are sadly defective, but his sanitary principles are as sound as a (gold) dollar.

Does Disinfection Disinfect?

After a series of experiments with a 2-per-cent. solution of the mercuric chloride, M. Laveran concludes that disinfection by spraying, as frequently performed, does not suffice to destroy

infectious germs. In presenting the results of his experiments to the Paris Academy of Medicine, he urged that the walls of an infected room should be treated as a surgeon treats his hands before an operation. That is to say, they must first be washed with soap and then with an antiseptic solution, and he recommends the successive use of a 5-per-cent. solution of carbolic acid and a 2 per 1000 solution of sublimate. In order to make this form of disinfection practicable, all rooms exposed to frequent infection—hospitals, barracks, hotels, asylums, and workshops—should be made with impermeable walls. M. Dujardin-Beaumetz replied to M. Laveran by recalling the very reassuring fact that during the two years in which the public service of disinfection had been working in Paris, local house epidemics have all been promptly checked. This practical test is sustained by the experience of sanitarians in this country, where the methods of disinfection in the large cities are substantially the same as in Paris, and where results are obtained which are certainly, as Dujardin-Beaumetz says, “very reassuring.”—*New York Medical Journal*.

Prophylaxis of Degeneration.

La France Médicale, September 28, 1894, gives an abstract of Berillon's views upon the children showing marks of degeneration, a subject of importance to all interested in hygiene and the amelioration of human life. Not alone does degeneracy manifest itself by physical stigmata, by functional troubles, like incontinence of urine, yawning, convulsive attacks, and by mental troubles, such as night-terrors, somnambulism, and perverted instincts. It also expresses itself in a special way, by a tendency to automatic actions or habits. The frequency of unpleasant personal habits in degenerates is explained on the ground that the inhibitory or moderating power of the healthy brain is in them more or less in abeyance. These personal habits are invariably in direct opposition to the laws of health. A child who bites the nails, for instance, conveys to the mouth little particles of various harmful substances that are detrimental to health. Onychophagists invariably present stigmata, and in the Parisian schools can usually be recognized by their general appearance. The habit of nail-biting is often accompanied by other worse vices. Attention and treatment, both moral and medical, brings about marked improvement in general health, and seems capable of arresting further deterioration.

Laughter a Remedial Agent.

The remedial effects of laughter are really wonderful. Cases have been known where a hearty laugh has banished disease and preserved life by a sudden effort of nature. We are told that the great Erasmus, the eminent theologian, laughed so heartily at a satirical remark that he broke a tumor and recovered his health.

In a singular treatise on "Laughter," Joubert gives two similar instances. A patient being very low, the physician, who had ordered a dose of rhubarb, countermanded the medicine, which was left on the table. A monkey in the room jumped up, discovered the goblet, and, having tasted, made a terrible grimace. Again putting his tongue to it, he perceived some sweetness in the dissolved manna, while the rhubarb had sunk to the bottom. Thus emboldened, he swallowed the whole, but found it such a nauseous potion that, after many strange and fantastic grimaces, he ground his teeth in agony, and in a violent fury threw the goblet on the floor. The whole affair was so ludicrous that the sick man burst into repeated peals of laughter, and the recovery of cheerfulness led to health.—*Sel.*

Deaths of the Aged and Longevity.

There is a certain grimness of humor in the persistence with which paragraphists, on the advent of cold or foggy weather, which is invariably fatal to many old people, summarize the deaths of octogenarians and nonagenarians announced in the obituary columns of the daily press, and head their paragraphs "Longevity." It is, to say the least, paradoxical that exceptional mortality among the aged should be referred to as evidence of longevity. An industrious correspondent of a contemporary recently reported that the obituary columns of that paper during 1894 announced the deaths of 196 nonagenarians, of whom 89 were males and 107 were females; and, as is usual in these communications, the correspondent adds that their "aggregate ages were 18,203 years." It is such useless figures as these that bring discredit on statistics. They convey no definite idea, and do not even suggest whether we should be struck with the number being high or low. Probably not many of these paragraphists and correspondents have the slightest idea of the fact that at the last census, in 1891, no fewer than 9185 nonagenarians were enumerated in England and Wales.



**Decoration to William R. Warner & Co., by the
Belgian Government.**

THE grand decoration bestowed upon William R. Warner & Co. by the Belgian Government has just been received by that firm. It is an additional tribute for the excellence and superiority of the firm's ready-coated pills and other pharmaceutical products, for which the house has a great name. The decoration is of the most beautiful, in gold and white enamel, taking the form of a Maltese cross, on the centre of which on a blue ground is the inscription. A wreath in blue and gold surmounts the cross, the whole being topped by ribbon, tied in a bow, of the national colors. The design is very pretty and the recipients are, of course, delighted over the award and the form it has taken.—From the *Philadelphia Inquirer*.

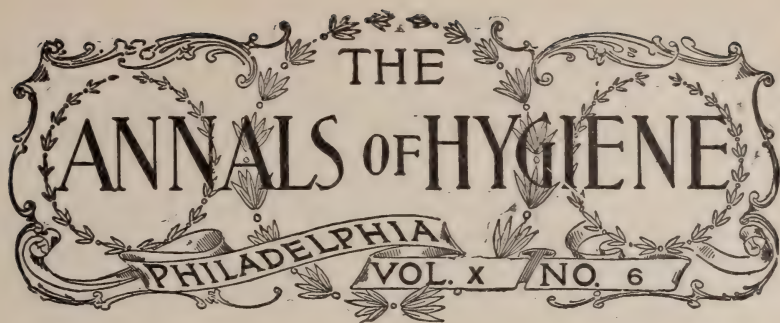
THE *pushing* physician, with the aid of a bicycle, can reach a patient at a considerable distance in the time usually required for harnessing his horse. He should, therefore, own a bicycle, and it should be the best wheel made. The "Monarch" is the best!

MONARCH CYCLE CO.,
Chicago, Ill.

IN the after-treatment of a case where an "OPERATION FOR THE RELIEF OF AN IMPERMEABLE OCCLUSION OF THE ŒSOPHAGUS OF FIVE YEARS' STANDING" had been performed, which operation was reported at length in the *New York Medical Journal* of March 23, 1895, Dr. Augustus C. Bernays, A.M., M.D. (Heidelberg), M.R.C.S. (Eng.), Professor of Anatomy and Clinical Surgery at the Marion-Sims College of Medicine, the operating surgeon, says,—

"The patient rallied fairly well after the operation, but she became greatly emaciated. Liquid food was given at short intervals and stimulants as indications demanded. In order to allay the extreme nervousness and irritability, antikamnia was given, and it acted promptly and satisfactorily in every instance."

Of the further history of the case it may be stated that on the seventh day after operation the patient took into her stomach through the natural channel the first food which had passed it in five years; and that in two months convalescence was regarded as fully established.



COMMUNICATIONS.

Athletics.—Health.

BY PROFESSOR EDWIN CHECKLEY.

(WITH COMMENTS BY THE EDITOR.)

PROFESSOR CHECKLEY holds and teaches the soundest of views on physical culture; he has written an admirable book on the subject, which has made him an authority; so much of an authority that the emanation from him of any opinions are widely accepted, and if there be anything faulty in these opinions, even these faults may be accepted as correct, because of the authority of his name. This is why we comment upon his views of physical culture, as published in a recent issue of the *New York Herald*. We do not know whether Professor Checkley is a physician or not (we do not find his name in the Medical Directory), but when he leaves the domain of, so to speak, *mechanical* physical culture and enters that of physiology he falls into heresy. Now for his interview:

“Are modern athletics injurious? Do our systems of physical training tend to develop a strong and healthful man who in after life will better be able to resist the encroachments of disease? Do athletes live longer than persons who take only an ordinary amount of exercise?”

“These were the questions I put to Professor Edwin Checkley, the exponent of natural methods in physical training, and he replied abruptly and emphatically:

“I have no hesitation in saying that our systems of athletic training, at least the most of those now in vogue, are not only vicious in principle,

but that they tend to break down the system, shorten life, and generally do more harm than good. I have made a study of the subject for many years, and I long ago began to inquire why it is that so-called athletes usually die young or are not nearly so vigorous at 45 or 50 as the man who has rigorously neglected any sort of training, and, perhaps, even exercise. That such is the fact there is no room for doubt. Athletes do die young. Furthermore, the average young man rarely keeps up his athletic exercises after he is married and settled down. At 25 or 35 he leaves off. The result is that he begins to grow fat, and then has to resort to dieting and do all manner of uncomfortable things.

“‘WHAT STRENGTH PROVES.

“‘To me the great athlete and strong man, the John L. Sullivan or the Sandow, is not an evidence of the remarkable and beneficial effects of ‘training,’ but of the wonderful endurance and toughness of the human animal. There isn’t any animal on earth that can stand so much exposure, so much fatigue, so much exhausting work. And I think you will find in almost every instance that your strong man and your noted athlete has had a magnificent frame and physique to begin with. Take Sandow as an example. With that frame and body of his he ought to be ten times stronger than he is.

“‘The bugbear of training is about the worst thing in the way of our physical health. The average man knows that to go through a system of training, even though it may be only an hour or two a day, is hard work. It gets monotonous and distasteful. It is not only all this, but it is in the great majority of cases utterly useless besides.

“‘There are two things that the average writer about physical training is never tired of bringing up. They tell us to look at the ancient Greeks and at the animal kingdom. Now, if there is any lesson in these two points at all, it is that, so far as I have been able to discover, the Greek athlete was, on the whole, inferior to the athlete of to-day. As for the second, the principal thing to be noted about the strength of the lion and other great animals is that it is acquired with no exercise at all. The lion, for example, is not only one of the strongest, but one of the laziest brutes in existence.

“‘The finest point of the old Greek system and of the Panhellenic games was their inspiration to the rising generation. They made physical vigor fashionable. But it is to be remembered that the great object sought to be attained was not to fit men and women for such a life as we lead to-day, but to make of them warriors and mothers of warriors. They led an outdoor life; they did not spend their time in drawing-rooms, nor at the desk, or behind the counters. And all these things ought to be considered when we set out to make a healthy man of to-day.

“‘TRAINING IS UNNATURAL.

“‘Now, training and all its attendant vices of baths and tubbing, and all the rest, are essentially unnatural. The course of exercises prescribed to the ambitious victim of physical weakness is altogether too heroic, and even those who are fairly strong, and who would like to develop and main-

tain their strength, are frightened off by the systems put forward as necessary. Doubtless, certain artistic formulas of training have a fascination for many. Their ingenuity seems to promise a royal road to health. Their novelty counts. You try them ; you push and pull, and strain and struggle; you feel your muscles expanding, and that you are becoming a little amateur Samson. Those bulging biceps especially you call attention to as synonymes of strength and health. But the fascination of the machine vanishes after a while, and something interferes with its use. It is put off for a day, then a week. Interest gradually fades, and the biceps go to the bad again.

“So it is with that bugbear of diet. Dieting means, you know, leaving off eating just the particular things you like. Do this, and your protruberant abdomen will begin to disappear. The worst of it all is that, after having made one's self thoroughly uncomfortable and given up all the good things of life for months, the net result of the whole ordeal is the loss of only a few pounds of flesh and no material change in one's physical appearance. Then at the first halt in the rigid dietary discipline there is a complete relapse into flesh.

“I do not mean by all this that I do not regard athletic sports of various kinds as healthy and valuable. On the contrary, I do, just as long as they are pleasurable and are play and not work. But when our young athlete begins to train for a rowing contest or for the foot-ball team or for anything like that he is going to an excess, and that is just as bad as excess in any other way,—in business, in mental labor, or in anything else. And the chances are that he will exhaust his system, come out with a weak heart or some other trouble, and be physically damaged for the remainder of his life.”

Thus far we are entirely in accord with Professor Checkley ; what he says is truthful, scientific, common sense ; no one who has the knowledge to warrant him in speaking on the subject will question the accuracy of any one of these assertions. But now we come to the heresy, when Professor Checkley says,—

“THE MATTER OF BATHING.

“There is another distinct vice that the vast majority of people are more or less victims of. That is bathing. It is a tub in the morning and a tub at night. It is hot baths and cold baths and always with a deluge of soap. Now, a bath, except where it is used as a stimulus, is distinctly unhealthy. Physicians recognize this, and weak, but puny children are not bathed often. Take the testimony of children, any way. They always rebel against a bath, for the touch of water against the skin is unpleasant and distasteful. It is only by constant habit that we come to find it agreeable. And even then its effects do not wear off. A bath is exhausting, and lowers the vitality of the body. The man who doesn't feel weak or who doesn't want to sleep after a bath is too lethargic to experience any kind of a sensation. *The especial point about bathing, for another thing, is that it does not cleanse.* I am not sure that a Turkish bath once in a while is not a

good thing, for it brings out the real 'dirt' of the body, *but as for dirt on the skin, if the skin is in a perfectly healthy condition, it may be brushed or rubbed off, but it can't be washed off*, and one of the last absurdities is that soap is necessary. The soap that we use is not the kind that will cleanse at all.

"The true way is to keep the skin in a perfectly healthy condition, to keep the pores open, so that the skin can breathe, and it will keep itself clean. No one ever heard of wanting to wash the lungs, and the skin does a great deal more breathing and is a much more important function than are the lungs. Another thing that would result from this is an improvement of our complexions. No amount of soap and water ever improves any one's complexion, man or woman. But healthy breathing, and lots of it, and a little exercise, will make the skin healthy and clear, do away with that muddy look and make it fresh and rosy. The finest cosmetic in the world is to take a few long breaths in a proper style in the morning and again at night, and as often during the day as one happens to think of it."

If Professor Checkley will first dip his suit of outside woollen clothing into a caldron of grease and then expose it to a current of dust, or dirt, will he claim that this dust, or dirt, can be *brushed or rubbed off*; will not some alkali be requisite to remove this combination of grease and dust? so is it with the dirt on the surface of the skin; the millions of sebaceous glands everywhere present in the skin are continually lubricating the surface with an oily secretion, which, in combination with the putrefying organic matter brought to the surface by the sebaceous and sweat-glands, constitutes the "*dirt*" of the skin. If this greasy, adhesive "*dirt*" can be *brushed or rubbed off* then it is unnecessary that our underclothing should be "*washed with soap*;" these articles need only to be *brushed or rubbed off*, since that which befouls these articles of apparel is identically the same greasy, sticky "*dirt*," as that which befouls the skin, from contact with which the underclothing is soiled.

If, living in conformity with nature, human beings discarded clothing and allowed the atmosphere to have constant access to the skin, then it might be possible that Professor Checkley's idea of "skin cleanliness," without bathing, might become a reality; but while clothing is worn to confine the emanations from the interior of the body to the surface of the skin, to form thereon a layer of dirt of decomposed and decomposing organic matter, more or less visible even to the naked eye, in proportion to the length of time that has elapsed since the last bath, just so long must we hold that soap and bathing are essentials of a cleanly and a healthy skin.

We agree with Professor Checkley in his condemnation of "tubbing" and "cold showers" and "cold plunges" and all the bathing paraphernalia that usually accompanies modern physical culture ; all this is not only unnecessary for cleanliness, but it is also injurious to health.

Perhaps Professor Checkley does not mean to condemn the ordinary domestic bath, taken once daily or, perhaps, twice or thrice weekly, but this is the way his words sounds to us, and this, we fear, would be the average interpretation of them, hence, our discussion thereof.

The following paragraph with which the professor concludes his interview is so beautiful, so concise, so full of wisdom, so eminently true, so *classical*, that we would suggest that all who read it cut it out, paste it on card-board, and hang it in some conspicuous place, as a constant reminder of the needs of health, strength, and longevity. Solomon never uttered more condensed wisdom.

WHAT WE NEED.

"What the man of to-day needs most is not athletics in a gymnasium, but plenty of fresh air in his lungs. Instead of a quantity of violent exercise that leaves him weak for several hours afterwards, he needs to learn to breathe right, stand right, and sit right.

"The young man or young woman who starts on a career of training and keeps it up year after year, just at the time when the body has a great deal of its own natural work to do and wants to do it, may make up his or her mind that beyond a showy and superficial development of muscle and strength, all this training, in after life, is going to count against him. They are not going to be so strong nor so bright nor so happy nor so prosperous as the man or woman who took things simply and easily and naturally, and, if you like, made of laziness a fine art."

Professor Checkley is eminently sound on everything pertaining to physical culture, save his views of bathing, in regard to which he is, unquestionably, wrong.

Milk as Food.

BY N. A. WHEELER,

Alpowa, Wash.



UMOROUS or serious discussion concerning the natural adaptability of milk for human food by persons unreasonably prepossessed or of debatable proclivities, sometimes with more ostentation than understanding, cannot appreciably change or greatly influence the present universal practices and habits of the people of the world in relation to distinctive articles of diet ; but it is most eminently fitting for unbiased and truly conscientious investigators to freely and fraternally exchange timely and explanatory sentiments on the widely conflicting opinions and antagonistic theories of scholarly and conservative scientists on the undeniably complex question of what particular foods mankind should hygienically approve and what is, if any, by Deity condemned.

How amazingly strange it is that so many millions of persons of seemingly commendable intelligence and excellent judgment will ignorantly or inattentively persist in drinking milk as they would water, then regretfully and very unexpectedly become greatly inconvenienced from mental and physical inactivity, and afterwards bitterly complain because they cannot drink a favorite liquid food with impunity when they think they positively know and can solemnly vouch for its unmistakable purity and inviolable sweetness. These millions of self-deluded people should compliantly understand or be compulsively trained and educated to rightfully understand that the unwholesomeness of milk, the distensible and unpleasant feeling of fulness immediately after ingestion, is chiefly due to the uninsalivated condition and the ungracefully bolted manner in which it is passed into the stomach. Unwisely and hurriedly drinking milk by the masses is the universal rule, eating it the rare exception. Milk is food, and if eaten, not drank, and thoroughly insalivated like other food, its harmful or deleterious qualities and effects are vastly mitigated and almost wholly destroyed. Its occasional tendency to continuous obstinate and sometimes intermittent constipation can be easily remedied by thrice daily eating generously of acknowledged

laxative foods, such as fresh beef, whole-wheat flour, rolled oats, rye meal, beans, lentils, molasses, sorghum syrup, maple syrup, grapes and figs dried or undried, apples and pears unpared and undried and uncooked, if tolerated, but pared and cooked for intolerant and delicate stomachs. Ordinary and sometimes afflictive flatulence from eating some of the more irritably inclined fruits uncooked is mildly and almost completely corrected by uncooked new milk of creamy richness. And it is of supreme importance, in fact superlatively, dietetically, physiologically, preternaturally mandatory that this new milk should be from a young animal whose last suckling is not more than three months old; and one month or less, if practicable, is far better than three months. Habitual use of milk from an animal several months in lactation will gradually and most surely lead up to the so-called biliousness, protracted constipation, physical inaction, mental dulness, serious indisposition, abdominal derangement, intolerable sick-headache, etc., if not timely, courageously, continuously counteracted with an abundance of laxative food and regular, satisfactory, natural, excretory habits. Emotionally apprehensive mothers and truly conscientious physicians will eventually find this to be one of the chief inconsiderate causes of the frightfully increasing death-rate of their beloved babes who are unnaturally and artificially fed on innutritious, unhealthful, constipating, morbifical, deceptively inanimated, irremediably transmuted, perilously unsustaining, blood-corrupting, life-impairing, slowly and insidiously spasmodical, consumptively enhanced, and manifestly health-forbidden milk from an animal whose great length of lactation period is a heinous offence to animal nature, ineffably shameful to the vaunted intelligence of human nature, and weirdly echoes the famishing cry of infants, the suspirations of home bereavement, the interment weeping of the unconsciously misguided wisdom of a compassionate and sorrowing maternity. The glaringly obvious and only sensible remedy for these inexcusable, widely existing, and lamentable conditions,—seemingly but erroneously providential is *new milk from young animals of recent confinement*.

The professedly irrefutable and personally verified proof of the preceding is inferentially noteworthy and highly satisfactory—but in a private way sacrificial—after many years of energetic determination and anxious experimentation. And yet scoffers and sceptics are legion. The don't-care feeling and practice of

well-meaning persons is truly alarming. The present rural-home system of milk production is manifestly denunciatory; and innumerable existing dairies, scrupulously clean superficially, methodically exact in minute, hygienically correct, and satisfactory in scent, taste, and appearance, are veritable death-traps in disguise from the owners' inconsiderateness and from being inconversant with the morbid condition of the milk when first drawn from the animal; whether it be the goat, the cow, the mare, the ass, or the camel. The direful, decimating result of present and prospective inconsideration, inherited and fostered hallucination, illusive sanitation, inconversant alimentation, undignified, and discreditable derision in reply to pertinent suggestions concerning natural and unnatural nutrition, lamentable imprudence in affectionately solicitous parents lavishly providing degenerated milk for family sustenance, is most regretfully seen in the many unmercifully milk-afflicted homes of unsightly and unseemly sorrow where the least and the greatest, the weakest and the wisest of our modern civilization and highest culture predominate. Providence is powerless to help us; and the concerted movement and the full power of the press, the combined knowledge and practice of our most eminent physicians, the collected life-experience of distinguished hygienists, the unproblematical erudition of the profoundest sanitary thinkers, the united activities of all the more pronounced health-promotive institutes should immediately, without reservation, be unsparingly and most intensively employed in severely but fraternally upbraiding and correcting the inattentively misinformed masses, and intellectually inciting the apathetic classes towards a better understanding of the continuous and dangerous changeableness and deplorable unfitness of their health-depleted, lacteal food for the complete development of mental and muscular action. The writer has incessantly sought, had, and interestingly and consummately improved, numberless opportunities of severely testing the long and short intervals of lactation in relation to the laxative and constipating periods and morbid conditions of goat's milk in California and cow's milk in Oregon and Washington. Sterilization would be useless and inoperative, and utterly fail to satisfy the correct natural conditions or rightfully restore the irretrievably lost and the confessedly absent life-sustaining active principle and other constituents absolutely required for a healthy milk. Conclusions reached from these long-continued experiments, experience, and observations cannot well be erroneous or delusive.

Inobservant human nature is insensately foolhardy and unconcernedly dutiful in unworthily and contumaciously disregarding needful restraint and prospectively calamitous consequences. Clearly and respectfully it would be rightfully within the limits of reason to say that the forewarned and correctly informed last half of the people would indifferently and forever continue the gratification of their taste and desire for milk, irrespective of its seriously defective condition, even if the self-deluded and unfortunately opinionated first half were known to have inheritably and prematurely perished from its moderate or immoderate use. Nature furnishes in profusion nearly everything adapted to our requirements, but in a wild, undeveloped state, and the most of it is decidedly unfit for immediate appropriation. Artificial preparation and skilful manipulation of food material is indispensable at this modern date. At a date long since passed ancestral and legendary food was more naturally supplied. Many thousands of years ago mankind and nature were very near together; now their separation is wonderfully great and yearly increasing.

At the commencement they had an even start in the race, but at present the foremost cannot look back far enough to see the hindmost. Man's inherent predilection is unceasing progression; primitive nature is less so and far in the rear. To our finite intellects the prior, present, and ultimate design of the Creator is a comparatively secretly sealed book, and the greatest might of man is unequal to the task of breaking the seal. The supposed wisely withheld motive or the purposely concealed intention of nature may be reverently said to be predeterminately placed in an inaccessible time-locked vault, and the Almighty carries the key and the combination. We care naught for the innately concealed and incomprehensible intention. Why should we? It may, and probably will, forever remain where it is; unseen in time, unknown in eternity. But we are happily and sufficiently guided in the proper selection of our food by the five bright lights of our being. For more than these it would be a sacrilege to ask. Two of our most prominent senses daily desire a generous quantity of milk, and with commendable promptness we dutifully and fearlessly supply the demand; not by mercilessly robbing the calf, but by wisely feeding the cow. A vast amount of other necessary and luxurious foods are procured and prepared in a similar manner and clearly antagonistic to the three scientific

cally classified kingdoms of terrestrial existence ; and if the moral law of immortality or the civil law of life has been violated or evaded, and legendary criminal accusations preferred against us for clandestinely and surreptitiously securing the busy bee's accumulated sweetness we could be sordidly and not inappropriately classed with, and physically and mentally subjected to, the merited punishment of notorious milk and honey thieves. How can innate reason or creation's Ruler reconcile these apparently unenlightened, profanely and irrationally, theoretically and ungenerously conceived incongruities? In the entire absence of supernatural authorization or inspired explanatory guidance concerning the selection of the more proper human food, we very naturally, and presumably quite safely, follow the direct dictation of our intellectually and practically disciplined, designedly and complacently cultured, adequately and dietetically developed heavenly-endowed senses. Human appropriation of the honey of bees and the milk of animals surely cannot irreverently offend nor presently or remotely interfere with the continuously and superlatively sacred work of the Supreme Being. We are, practically, an inestimable aid to that great work. Our highly-inspired matchless motive inviolably connected with every commendatory act and authoritative movement in food-production conducive to a beatific life and a glorified departure is deeply and devoutly sympathetic and heartily in accord with all earthly and heavenly acknowledgments and developments, not defiantly independent of nature's predetermined and now existing environments, and our divinely-assisted emulous effort in furnishing immaculate milk with other gastronomic dainties for an ideal dietary is conscientiously undertaken and consummated for humanity's greatest sanatory interest in as masterly a manner as the illimitable human mind can approximately determine its phenomenal competency. All nature, all the earth, all heaven cannot well be otherwise than highly pleased and immensely profited by this interminable and predestinated work of progression, development, and amelioration. Even the meek mammalia themselves seem to mutely acknowledge our divinely accredited credentials by their gracious compliance and instinctive submission to our daily manipulation and food requirements. By kind treatment, strict attention to reproduction and judicious feeding, we can always creditably and proudly show a fat calf, a fat cow, and at the same time easily furnish a numerous family with an abundance of greatly relished and wholesome

liquid food. Nature cannot equal this and has been distanced in the race. Divinity has been skilfully outdone by ourselves in perceptibly pleasing the senses with highly nourishing and palatable food in the form of milk without any known or apparent historically divine transgression. We are cognizant of no wrong and have surely committed no ancient religious or modern civil crime. We have successfully accomplished and produced much more than pristine nature has been doing or can do, with a munificent surplus for gratuitous distribution to deserving fraternity, and cannot well be guilty of robbery of necessary nourishment from innocent and harmless brutes as is sometimes untruthfully alleged. We have acceptably and astonishingly improved their physique and dimensions, approximated most wondrously close to the symmetrical perfection of the smaller to the lacteal productiveness of the larger, and apparently pleased, not offended, the most pre-eminently idolized animals of the greatest progressive civilization known to the lower or the higher heaven. Effecting this is not to studiously and spitefully thwart or purposely and impiously offend the Creator ; not for the iniquitous inappropriation of sacredly or traditionally forbidden food seemingly placed within temptation's easy reach ; not to wilfully disregard authoritative ordinances and commandments of divine origination ; but to unselfishly and duteously delight the eye, passionately please the taste, completely satisfy the feeling, surprisingly strengthen the muscle, harmoniously excite the mind, thrill the heart with emotion, unreservedly and bounteously supply human nature's greatest terrestrial demands. This creditable achievement of an appreciative appetency delectably appeased, ingenuously exemplifies human enlightenment in the judicious selection of an eminently high class food, and forever relegates to oblivion the simulative affirmation of theologically and ancestrally inherited depravity in an adult taste for daily craving and pleasurably partaking of an alleged infantile and effeminate sustenance.

The present inconclusive diagnosis and the indeterminate fatality of tuberculosis in animals, and of tuberculous milk, will probably never be sufficiently terrifying to incautious and incredulous participants for its immediate or remote discontinuance ; but the contaminated milk, or its polluted source, should promptly and evidently will be, wherever positively indicated, subjected to a most searching, scientific treatment by acknowledged analytical experts in physiological exigencies and skilful experimenters in chemical expedients.

Hygienic milk, so termed for its high quality, limited lactation, fitness, and known incorruptibleness, if by Deity forbidden, then, logically, by Deity the universally adapted and what seems to be the divinely designated food for all mankind; from the Christmas cake to the oyster pie; from the egg of the fowl to the fish in the sea; from the garden pea to the orchard peach; from the honey of the bee to the olive of the Ark; from the slaughtered doe in the forest to the flesh of the lamb at home, is most assuredly too enigmatically indicated for an extraordinarily wonderful but unaccommodating human comprehension. If deistically indicated then in its inscrutable dictation and characteristically poetic cleverness and inexplicable signification in imparting symbolically compendious information concerning dietetics and gastronomy, the indistinguishable implication of the infinite therein triumphantly transcends the finite intellectual development of the marvelously mental wonder-working achievements of all modern and anciently historic minds of the material world.

Herein very great stress is intentionally laid on the supereminent adaptability of undefiled and undeteriorated milk for human food; and also still greater stress on the superlative importance and incontestable divine guidance of the relatively short lactation period for its healthful adaptation; unduly alarmingly so, apparently, but only justifiably so in reality for the timely and woefully needed correction of parental misinformation of to-day, and henceforward to the inevitably forthcoming offspring of the nearest, the furthest, and the last generation.

The Influence of Boiling Water.

BY GEORGE TROUP MAXWELL, M.D.,

Jacksonville, Fla.



ASK permission to criticise your remarks in the May number of the ANNALS, under the caption, "The Influence of Boiling Water."

When hygienists speak of pure water, it is understood that they refer to water which is free from pathogenic germs. They do not mean, I assume, chemically pure water, which is not found in any supply of water that is used for

drinking. Hard water is not chemically pure, yet Professor Kidzie says, correctly, I think, it is wholesome. No well or spring water is chemically pure, yet, until it becomes polluted by disease-producing germs, it is not hygienically impure.

It matters not that "so high an authority as Dr. Charles M. Cresson" declares that, "while boiling kills the germs of a particular disease, it yet, in reality, renders the water more impure than it was before."

In this age dogmatism is obsolete. No man's dicta are accepted without sufficient reason for their support.

True, the reason given is that "by the very death of these germs, dead organic matter is allowed to remain in the water which it pollutes." Is "dead organic matter" poisonous? If so, the human race would have long since been extinct. Does not the food of all people consist of "dead organic matter"? Do we consume living beef, mutton, pork, etc.? Are not all the vegetables we eat, except salads, boiled, or in other forms prepared by high degree of heat, and "killed"?

Is there any proof that even putrescent organic matter is harmful to health? I think not.

I would not have noticed this grave error, but for the harm it is calculated to do. I have for years advised friends who live in malarial districts, and drink surface well or spring water to boil their daily supply; and the beneficial results have been marked. Shall they be frightened from the employment of this conservative measure by the bug-a-boo of "pollution by dead organic matter"?

Let Dr. Cresson analyze the dilute stuff call soup, furnished by boarding-houses, and he will find therein "dead organic matter." Let him further analyze the materials which comprise his daily meals, and, unless he is unique in his tastes and their gratification, he will find dead organic matter.

Science is a great thing, but it is so because it is reasonable, logical. The apprehension of "dead organic matter," even in a state of putrescence, unless it contains pathogenic germs, belongs to the past.

A Chain of Diphtheria Cases.¹

BY DELBERT BARNEY, M.D.,

Wilkesbarre, Pa.



SHALL attempt this evening to give a plain story of contagion, with no more words than are really necessary to show the connection of one case with another, thus making the recital as brief as possible and yet avoid the tediousness of a mere catalogue. The matter of treatment does not concern the present subject; therefore it will not be touched upon to any great extent. The lessons which may be deduced from this story are obvious, and are thoroughly in keeping with the teaching of the profession, and they have been dwelt upon many times by different members of this society. The following is the story:

On July 21, 1894, I was called to see Roy G., a boy of 13 years, living in the lower end of South Wilkesbarre. His mother said he had a bad sore throat. I found the lad in bed, though much against his will, for he did not consider himself sick. His tonsils were much swollen, and speaking and swallowing were very difficult. Aside from this he was comfortable. His throat had been sore several days, but, as he was subject to swollen tonsils, his parents were not alarmed until they saw a membrane forming in his throat. At first I was inclined to call the trouble quinsy, but concluded to wait until I was sure, in the mean time keeping the boy isolated from the rest of the children, of whom there were five, and directing him to spray his throat frequently with hydrogen peroxide, and to take internally a mixture containing tinctura ferri chloridi. The matter of isolation was very easy, for the boy's room was on the second floor, while all the rest of the children slept down-stairs, and the weather was so warm and dry that they spent the whole day out of the house.

My subsequent visits almost satisfied me that the disease was diphtheria, but the mildness of its course and the ready disposition it showed to yield to treatment made me waver somewhat. The throat, however, became thoroughly covered with the membrane, which was thick and abundant. Still there were no other

¹ Read before the Luzerne County Medical Society, March 20, 1895.

distressing symptoms, and in less than a week from the time I first saw the case the membrane began to disappear, and in a few days more it was gone entirely, leaving the throat very red and the tonsils enlarged.

In the mean time none of the other children were taken with the disease; several of them complained of a slight sore throat, but there was not the smallest trace of membrane to be seen in any of their throats.

Upon inquiring as to whether there had been any other cases of diphtheria in that neighborhood or whether the boy had been exposed elsewhere, I found that there had been a similar case in the next house on that street. Johnson M., a boy somewhat older than my patient, had a throat which looked even worse than Roy's, and the youngsters were constant companions. In fact, they roamed the woods and fields together from morning till night, and just previous to Roy's sickness they took a trip together over to the Three-cornered Pond, a distance of about ten miles, walking the greater part of the distance there and back the same day. Johnson had been working in the breaker, but just at this time there was no work. Although his throat was very bad, he received no treatment whatever, nor did he stay in the house. When the breaker started up again, he went back to work, and yet he suffered no inconvenience. If he had diphtheria, and it seems conclusive that he did, he probably contracted it while at work in the breaker, and his case was the first of the series with which we are dealing to-night.

About the third week in August, Roy G. and his 8-year-old brother went to Scranton to visit their aunt, Mrs. R. Roy had been apparently well now for about three weeks, but up to this time they had not slept together. Now, however, they were obliged to share the same bed. In about three or four days the little fellow complained of sore throat, and soon a distinct membrane appeared there. Mrs. R. had never seen a case of diphtheria, and, thinking it a simple sore throat, she was not at all alarmed, but set to work at once to treat it herself with gargles and washes. She kept him in bed, but did not take any pains to keep the other children away from him. His case proved to be very mild, and in a week he was all right again, and as soon as he was strong enough she sent the children home.

Mrs. R. had three children of her own,—J. aged 8 years, E. 5 years, and A. 15 months. A few days after her cousins had

gone home Jessie was taken sick precisely as the little boy had been. Her mother, elated with her previous success and still ignorant of the character of the disease with which she was dealing, again set herself to fight it in her own way. Again she was apparently successful, for the membrane yielded and finally disappeared. But the child did not improve any further; on the contrary, a hoarse, croupy cough set in, and gradually grew worse. Now the mother was thoroughly alarmed, and sent for Dr. Gardiner, her family doctor. He diagnosed the case as one of membranous croup, and told the parents that no time was to be lost in putting a tube in the child's throat. They, of course, consented, and at nine o'clock that evening Dr. Roos, who had been called by Dr. Gardiner, assisted by the latter and myself, performed intubation. The relief to the child was instantaneous and constant, though the tube was coughed out and had to be replaced about midnight. For three or four days the tube was left in place, and after its removal the child's recovery progressed constantly though slowly. The vocal chords were paralyzed and the patient was very much emaciated.

In performing the operation of intubation, Dr. Roos was careful to remove his coat and vest, and to protect himself as much as possible by throwing a sheet over his arms and shoulders. Of course, his left index-finger had to be inserted into the child's mouth in order to guide the tube into place. Perhaps he did not use as much care afterwards in washing his hands. At any rate, his 20-months'-old baby was soon after taken sick with diphtheria. Having the advantage of its father's constant care from the beginning, it made a good recovery, though at one time it was thought that intubation would be needed.

When J. was considered out of danger and her voice was gradually improving, her little brother A. was taken suddenly with the disease, which almost from the beginning assumed the laryngeal type. Although he had the best of care and intubation was performed, in four days he was dead.

As soon as it was discovered that this child had diphtheria, the other two children were sent away from home, in order to save them, if possible, the one from infection, the other from reinfection. Little E. was sent to Binghamton to stay with friends. But she was removed too late. When the parents returned from burying A., they found that E. had been brought back with her throat filling up with membrane, and on the eighth day from that time she, too, was buried.

The parents were next attacked, but, fortunately, both were very mild cases. While the membrane was very distinct and typical, it was not very abundant, and they soon recovered.

The R. family lived in a double house, just off Pine Street, in a court running parallel with Adams Avenue. The family living in the other part of the house had two children, W. and G., aged respectively 12 and 8 years. G. was seen talking with J. on the front porch on or about the first day the latter was allowed to go out and before she could yet speak aloud. This was before the other two children of the R. family were sick. In due time both G. and W. had diphtheria. Both recovered.

Two other cases are thought to have been derived from the same source, but I cannot trace them directly. They were in a family living on Adams Avenue, less than half a block from the R.'s. One child died, the other recovered.

The scene of action is now transferred to Shultzville, in the heart of the farming region ten or twelve miles out of Scranton. J. R. had been sent there to the house of an aunt at the same time that E. had been sent to Binghamton. She had been there only a short time when the aunt, who had visited the children in Scranton before the disease was known, was obliged to go to bed with the same trouble. Her attack was quite severe, but lasted only about ten days, and she made a good recovery.

J. was at once sent back to Scranton to Dr. Gardiner's private hospital, where she remained until all danger of infection in her home was removed. But her cousin F., in Shultzville, was the next victim. He probably contracted the disease from his mother. After a severe fight the doctor and the trained nurse were victorious, and the little fellow was saved.

The last link of this chain was an aunt of F., aged about 40 years. She was deathly afraid of the disease, and religiously stayed away from the sick-rooms of her many nieces and nephews as long as it was thought there was the least danger. But when F. was apparently entirely well she went to see him, and, in her joy to find him recovered, she kissed him repeatedly. She then went home and promptly took her bed, and went through a severe siege from the terrible enemy.

Here we have a series of sixteen cases of diphtheria, traced almost directly from one to another, and exhibiting nearly every phase of this awful protean disease, ranging from the parent case,

which was so mild that no treatment was demanded, to three which were so severe that no medical skill could save them.


The disease seemed to centre around the R. family, every member of which was stricken, and of whom two died, in spite of the best medical care and that of a trained nurse. There must have been something wrong with the sanitary conditions of that house, rendering it a good culture-bed for the poison-germs; for the tale is not all told. Notwithstanding that every effort was made to disinfect that house by fumigating, boiling, scrubbing, and burning, diphtheria again broke out therein during the first week in March, and J., now the only child, was again prostrated. This time she was under the care of Dr. Capwell, formerly of the Lackawanna Hospital, who promptly made use of the antitoxin serum. The membrane had been spreading quite rapidly, but within twenty-four hours after the injection it almost entirely disappeared, and within two days not a particle was left. This case cannot be traced to any other source than the house in which the patient lived.

46 S. MAIN STREET.

Whole Wheat Flour or Superfine Flour, Which should be Used?

BY JOHN ELLIS, M.D.,

New York City.

OR more than forty years I have devoted special attention to the causes of the imperfect development, deformity, insanity, and diseases which have prevailed and which still prevail. Over thirty years ago I wrote a work on "The Avoidable Causes of Disease;" at a later date I wrote a pamphlet on the "Deterioration of the Puritan Stock;" which latter work was sent gratuitously to all of the physicians and clergymen, whose names I could then obtain, residing in our country.

No one who has not carefully read the testimony of medical and scientific writers, and watched its effects upon the young and others, and carefully experimented himself, can form the slightest idea of the great injury which has been and is being done to our

race to-day by the use of superfine wheat and rye flour, in the way of preventing the proper development of the young and causing disease and suffering.

There are few, if any, more perfect one article of food for man than wheat or rye if we can have the entire grain ; and it is perfectly safe to say that there is no poorer single article of food than what is called the best superfine wheat flour. The most careful experiments by Magendi and others have shown that animals fed upon it exclusively will starve to death in a few weeks, while they will thrive on unbolted wheat-meal or flour. Many years ago I was called to see a young girl who had eaten nothing but toast made from superfine flour bread for some weeks ; she was confined to her bed and not able to sit up or help herself, and she had the scurvy ; she was not very thin in flesh, but her strength and vitality were rapidly approaching the end. I told her mother that her daughter was being starved to death. She replied that she ate enough, but that if she ate anything else than white bread she could not retain it and would vomit. I told her mother that she must have more nourishment, and directed her to mix boiled mashed potatoes with the flour and make her bread of the mixture, which she did, unbeknown to her child, and the girl began to improve immediately.

For thousands of years, before the present system of bolting the products of grinding and rolling was known, vast multitudes of the human race lived principally upon wheat and rye, simply pounding or mashing the grain, or grinding it in a hand or other mill, and making their bread, puddings, cakes, etc., from the meal thus prepared, without even sifting, and the same is done to day by many of the inhabitants of different countries ; and wherever they thus live they are well developed, having good bones, teeth, muscles, and nerves. Why should they be better developed than those who use thus freely superfine white flour ? Simply because they eat the entire grain as the Lord has organized it for man's use. Immediately beneath the hull lies the dark portion of the kernel, which is hard, dense, and not easily ground or rolled into superfine flour, and if it were, the flour would not be white, but as dark, or even darker, than Graham flour, for there is very little color in the hull. This dark, hard portion, according to its bulk, contains in excess over the white or central portion the gluten, phosphorus, lime, etc., required to nourish the brain, muscles, stomach, bones, and teeth, in fact, all the active structures of the

body, whereas the white portion of the kernel contains, as compared with the whole grain, an excess of starch which is appropriated to supply warmth and fat ; it also contains gluten, but not enough of that and the other nourishing ingredients to sustain animal life for any considerable length of time, as I have stated. There is no nourishment in the hull of the grain, but it is entirely harmless to those accustomed to eat Graham bread, and is beneficial by preventing constipation and saving the necessity of having to take laxative or cathartic remedies. It is perfectly safe to say that where Graham or unbolted flour or bread has ever caused one case of dyspepsia among those accustomed to its use, superfine white flour or bread has caused a hundred, yes, a thousand, cases. In fact, the use of white flour for bread is one of the chief causes of dyspepsia to-day among our American people. By the use of white flour the stomach and bowels are overtaxed by an excess of starch which the system does not require, and these organs are deprived of a due portion of nitrogenous and other food which are absolutely necessary to give vitality and strength to enable the stomach and bowels to properly digest and appropriate the food taken into the stomach. So prevalent is dyspepsia and other troubles which have resulted from the use of superfine white flour and bread that we have a class of medical writers who publish a periodical, and are striving earnestly to lead their followers to give up the use of wheat, rye, and all cereals, and claim that we should live on fruits and nuts ; but my observations and experience have satisfied me that the diseases and symptoms which they claim result from the use of wheat, rye, etc., do actually result from the use of superfine flour, which contains an excess of starch, and is lacking a due portion of food for the brain, muscles, stomach, and especially for the bones and teeth. Physicians who have been accustomed, as I have been, to prescribe either Graham flour, after sifting out the coarsest of the bran, or hulled wheat flour, for delicate, sickly children, or older dyspeptics, have often been surprised at the wonderful change for the better which often ensues within a few weeks.

If you, gentle reader, would like to see the effects of eating white flour, just look at the crowded and irregular teeth in the imperfectly developed jaws of the children and young people around you, who live largely on bread, cakes, puddings, and pie-crusts made from such flour. Witness their decaying and aching teeth, many of them requiring the services of a dentist before they

are twenty years old. Look at the deformed legs and spines not unfrequently to be seen. If parents care for the welfare of their children, or even for their own health, they should never use or allow superfine flour to be used by those under their control.

Never since I commenced the practice of medicine, about fifty years ago, have unbolted wheat-meal or flour and bread made from the same been as freely used as at this day ; and the use of Graham bread is steadily increasing among intelligent people. For nearly forty years I have rarely used any other bread than Graham bread, and my wife usually makes our cakes, pie-crusts, and puddings from Graham flour, yet few persons, if any, have been freer from diarrhoeas than I have been. Neither of us have had any good reason to suspect that Graham bread or flour were irritating to the mucous membrane of the stomach and bowels. If the stomach and bowels have been accustomed to the use of superfine flour, or if they are already irritable, or should become so after commencing the use of Graham or unbolted flour, it will be desirable to sift out the coarsest of the bran, and it may, in rare cases, be necessary to do this permanently, in cases like that of your correspondent, where the stomach and bowels are naturally sensitive, owing to imperfect development resulting from the use of superfine flour when young, or other causes. My brother used tobacco for many years ; at last his stomach gradually gave out, and he was reduced to his bed, with little hope of his recovery by any one. He made up his mind to give up the use of tobacco, and gave it up. Gradually he regained strength and comparative health ; but he has never been able to eat Graham bread ; it is too irritating to his stomach ; he confines himself almost entirely to one raw egg stirred up freely in milk with a little sugar, two or three times a day, and white bread and milk or butter ; this is the extent to which he can go. It will be seen that he takes very little or no waste material, nothing but what can be digested and taken into the circulation ; the eggs and milk supply the nourishment lacking in his white bread ; and what is the result ? He told me when I last saw him that he does not have a passage from his bowels oftener than once in from four to eight or nine days, and that the longer he goes the better he feels. He is now 83 years old, active, and out attending to his farm. Now does it follow that because he cannot eat Graham bread that it is not a suitable article for people generally to use ?

But one of your correspondents says that unbolted flour will

not keep without becoming, in the course of time, bitter ; but the grain will keep any length of time, the entire contents of the kernel being protected by the hull from the germs of animal or vegetable (whichever you please) organizations, which cause the bitterness. Such organizations would starve if they were to attempt to live on superfine flour, as do our children to the extent they are fed on such flour. Those who use Graham flour have no trouble in keeping it a reasonable length of time ; and Graham bread is quite as good, and some think much better, without than with sugar or syrup. White bread is tasteless compared with Graham bread.

The History of Clubs.

BY LAWRENCE IRWELL, M.A.,

Buffalo, N. Y.



F the people in whose life the club plays an important part it may be safely asserted that not one in a hundred has any idea of the early history of the institutions with which he is so familiar. Clubs seem so much a part of our every-day life that we are apt to lose sight of their origin and to assume that they are merely a modern luxury.

The history of clubs is a subject of considerable interest, taking us back to the classic days of Greece and Rome, and thence to the days of the English Queen Elizabeth, reminding us that, after all, there is nothing new under the sun.

For the first chapter in the history of clubs we must look to Greece. It must not be supposed, however, that the Athenian clubs were the exact counterpart of those of the Fifth Avenue of to-day ; but there exists a strong affinity between them, as Aristotle tells us that men of the same trade and members of a particular tribe were accustomed to club together for various purposes. He goes on to say that some men combined for the benefits of social intercourse, adding that " these meet together for the sake of one another's company and to offer sacrifices ; when they meet they pay certain honors to the gods, and at the same time take

pleasures and relaxation among themselves." In Rome, the earliest clubs were the trade guilds founded by Numa Pompilius, about 720 B.C., similar to the guilds of craftsmen which play so important a part in the art history of the Middle Ages. At one time there were eighty of these guilds in Rome, and they were not confined to the metropolis. Very closely allied to the Masonic lodges of our day were the societies formed throughout the Roman empire for the practice of religious rites unknown to the State. An idea of the extent of club life in Rome may be obtained from the fact that even the slaves formed clubs of their own, which seem to have somewhat resembled trades-unions.

The purely social clubs of this period were formed chiefly by persons employed in the more distant part of the Empire, in order to lessen the feeling of isolation which their exile involved.

Although military clubs were ordinarily forbidden, yet they were tolerated among the officers of regiments employed upon foreign service. The rules of a club of officers of a regiment on service in Africa have been discovered upon the site of a Roman encampment. They are engraved upon two stone pillars, which appear to have been placed in a conspicuous position near the residence of the commander. The contribution to a club of this character was about \$125, of which two-thirds was returned to the member's executors upon his death. The cost of the funeral was paid by the club.

Another form of social institution was the ladies' club. In Rome these clubs were very numerous, some of them being for religious, others for social, purposes. The most celebrated of the latter class was called "the Senate of Matrons." In connection with it there was a debating society, at the meetings of which momentous questions of etiquette and dress were discussed with becoming gravity,—much as they are at the present time. Sometimes the fair women of Rome condescended to interfere in municipal questions, and when a man so fortunate as to have gained their good-will died, they erected a statue to his memory.

In both Greece and Rome political clubs were common, and in the former country the aristocrats and the democrats advanced their political views in somewhat the same manner as the Republicans and the Democrats do in this country to-day.

Although clubs existed in great numbers in these classic days, club-houses were few in number. Buildings of this kind were not so necessary in Italy and Greece, where men could meet

in the open air, under the shade of a temple, as they are where the climate is unfavorable to out-door gatherings during at least six months of the years.

To pass from Italy and Greece before Christ to the reign of the English King Henry IV. (1399-1413) seems a very long step. But my investigations lead me to the conclusion that clubs must have been extinct in the interval which divides these periods, for the secret societies of the Middle Ages—associations formed to transmit from generation to generation some secret—cannot be classed as clubs any more than the mutual life insurance companies of to-day can be so classed.

The first definite information we have of an English club is furnished by Thomas Acleve, the poet, who was born about 1370. He and Chaucer both belonged to a club called "La Court de bone Compagnie."

In the reign of Elizabeth (1558-1603) clubs became very numerous, and some of them were considered important in consequence of famous men being members of them. Shakespeare and Ben Jonson were members of a society which held its meetings at the "Mermaid" tavern, in London, and Jonson was a president of "The Apollo," the meetings of which took place at the "Devil" tavern, in Fleet Street, London.

During the time of Cromwell the "Rota" Club was formed for the propagation of republican views, and in opposition to the system of monarchy. Milton, the blind poet, was a *habitué* of this institution, but whether he came as a guest with a friend—if that was allowed—or whether he was a member, is not certain. The "Sealed Knot" was the opposition royalist institution. Its members organized an insurrection, which never took place, in favor of the exiled King Charles.

From this time the decay of the tavern club set in, and the establishment of club-houses, at first slow, eventually caused the abandonment of the meetings at taverns.

The Prevention of the Development of Consumption in those Predisposed by Inheritance.¹

BY F. A. BOTTOME, M.D.,

New York.



Of course it will be impossible for me to do more than indicate the line of treatment, with perhaps special emphasis placed on certain points, but we shall be greatly aided if we keep well in mind the object of our treatment, the increasing of potential energy. In supplying this energy three means naturally suggest themselves, in food, air, exercise, and by regulating these we can accomplish a great deal even among those who must of necessity remain in the city, where these cannot be so easily regulated as in the country, and in special climates.

Food.—In the classification of food we find that different classes serve different purposes in the animal economy. Thus the nitrogenous elements serve principally the purpose of tissue-building, and the storing up of potential energy, while the hydrocarbons and carbohydrates are concerned principally in heat-production, and from this fact it is evident that the food-supply in these subjects should contain a large proportion of nitrogen. Unfortunately, it is in this very class of patients that we find a marked perversion of appetite, a liking for sweets, a distaste for meat, and it will require all our powers of tact and persuasion to regulate properly the diet of these cases. Some experimenters claim excellent results from an exclusive meat diet, but aside from the difficulty of carrying this out, among private patients at least, the general consensus of opinion is in favor of a mixed diet composed largely of nitrogenous foods.

If we are fortunate enough to have the patient under observation from the time of birth, the problem is less difficult, providing we can enlist the co-operation of the parents. The fact that the child of a tuberculous mother should not be fed from the mother's breast, on account of both mother and child, is universally conceded; but, in addition to this, would it not be wiser that a mother who inherits merely this diathesis, although she may not have developed tuberculosis, should not suckle her offspring?

¹ Abstract of a paper in the Medical Record.

At the present time when the subject of bottle-feeding has been placed on a scientific basis, so that cow's milk can be made almost identical with human milk, the removal of the child from the breast is no longer such a serious question, nor is there the unpleasant alternative of a wet nurse.

It is possible in this city to order a milk containing the albuminoids, sugars, and fats in whatever proportion the physician may desire, and by taking advantage of this fact we can increase the albuminoids or nitrogenous portion in these cases and watch the effect.

I do not know whether this has been done by any one as yet; but is there not here a field for investigation to find out the effects of a larger proportion than is usually given, of the nitrogenous elements in the diet of an infant of tuberculous parents?

As the diet of the child increases in variety it should still consist of only plain wholesome food, largely of a nitrogenous character. The child should not be permitted to develop an appetite for sweets and pastry. The custom of giving a child candy as a reward or bribe is a bad one, aside from the questionable moral effect, and especially is it true in the cases under consideration, for perfect digestion is a *sine qua non* in their successful treatment, and in these subjects (the) sugars are very apt to cause digestive disturbances.

As the child grows older the diet, of course, varies somewhat; but the same principle holds good. And in the selection of articles of diet, with the aim of giving a large proportion of nitrogen, we shall find a large number from which to choose, for aside from meat we find other articles containing a large proportion of nitrogen; thus, eggs contain about 13 per cent. of proteids, fish 18 per cent., oatmeal 12 per cent., peas 20 per cent., cheese 31 per cent. I mention these simply to emphasize the fact that meat is not the only nitrogenous food, and that in regulating the diet, to prevent sameness, we can select food-stuffs which will still aid in accomplishing our aim.

Air.—The necessity for fresh air is as important as the necessity for proper food. The rôle which oxygen plays in the metabolism of the body is a well-known physiological fact, but is more often disregarded in practice than remembered in theory.

It would, of course, be better for persons subject to this diathesis to live in some region where the air is absolutely pure, and where the tubercle bacillus is not present, but this is not often

practicable, nor is it necessary. If we breathed nothing less impure than the out-door air of this city we should have little cause for complaint. It is the air in our dwellings that is impure, and the fault is our own.

When the patient is old enough to look out for himself, we can advise him, as far as possible, to lead an out-of-door life, and in the case of a young man to select a business or profession where this will be possible; but if the patient is an infant or young child we must be explicit in our directions to those in charge of the child, and teach them a few lessons on the subject of ventilation.

We must show them how perfectly possible it is to ventilate a room without the presence of draughts. That it is only necessary to have a communication between the outer and inside air, and by the law of diffusion of gases, and the law which relates to the difference in weight of masses of air of unequal temperature, the warm, impure air of the room will pass out, and the cool, pure, outer air will come in and take its place, and that the process can be made to take place so gradually that the temperature of the room remains stationary.

We can tell them that the simplest, and yet one of the most delicate means of testing the purity of the air in a room, is that by the sense of smell; that on entering a room to be tested we should notice no difference in point of freshness between the out and inside air, remembering that warm air is not necessarily impure, and that in this test the question of temperature is not to be taken into account.

These are homely truths, and it would hardly seem necessary to mention them, and yet is it not true that the majority of sleeping-rooms have a disagreeable, stuffy odor before they are aired in the morning? This odor is due to the organic matter exhaled from the lungs and skin, and if not removed from the air of the room is taken into the lungs with each inspiration and constitutes a positive poison. Such a condition is bad enough for healthy subjects, but for the cases under discussion, in whom the amount of vitality is below par, is a serious drawback to our efforts in overcoming this diathesis.

Exercise.—As the child grows older, and especially during the period of youth, exercise is important as a prophylactic measure. In considering the subject of food, we pointed out the necessity of increasing the nitrogenous elements; but this is only

possible as it is combined with active physical exercise. The nitrogen assimilated is stored up, principally in the muscular tissue, and as this is increased and developed a correspondingly large amount of nitrogen is stored up.

In considering the different forms of exercise it will be well to select, as far as possible, those which, of necessity, must be performed in the open air, as fresh air is thus obtained at the same time. Bicycle riding is an excellent form of exercise, providing a faulty position is not adopted; also brisk walking, especially when taken with some definite purpose other than for its own sake. Swimming, horseback-riding, and, in short, all recognized forms of healthy out-door exercise will accomplish the desired end.

Besides these there are special forms of exercise which apply particularly to these subjects in whom there are frequently found a poor chest development and deficient lung expansion. Perhaps one of the best means for overcoming these defects is the exercise of swimming, in which there is, of necessity, a forced inspiration and a special development of some, if not all, of the muscles of respiration.

In addition to these there is the exercise with the so-called chest-weights, and how much can be accomplished by these and other forms of gymnasium apparatus has been recently shown in a paper by Dr. Gardner Smith. The only objection to exercise in the gymnasium is the poor ventilation frequently found there, but this is a fault easily remedied. A simple, yet practicable, means of increasing the lung expansion, including the apices, which, in these cases, are so apt to be partially collapsed, is that in which the subject, when walking in the open air, inhales slowly and deeply, and then retains the air in his lungs for a few steps, when he gradually exhales. In this way I have seen the lung capacity markedly increased. To some of these patients, on account of business, daily open-air exercise or that in the gymnasium is an impossibility. In these cases I advise the purchasing of a chest-weight apparatus, which is placed in the bath-room and used every morning for a short time, followed by a cool plunge-bath and brisk rubbing. The latter serves the purposes of cleanliness, an active tonic, and a means of hardening the skin, thereby lessening the liability to "catch cold." The interest of the patient in his increasing muscular development removes the sense of irksomeness from the exercise, and the after-effects of the cool

bath are such that it soon becomes a great pleasure, and not to be foregone by one who has become accustomed to its use.

These are a few of the salient points in the hygienic treatment of this condition. I have made no mention of drugs because, in the majority of cases, they are not called for, though often their treatment is dismissed with a prescription for cod-liver oil. Any intercurrent disease must be treated on its own merits, and this includes the surgical measures indicated in diseases of the respiratory tract, to which we should pay special attention.

In closing, let me again emphasize the fact that the etiology of tuberculosis is twofold, and that in the prophylactic treatment we should pay as much attention to the diathesis as to the tubercle bacillus.

My excuse, if one is needed, for confining myself in this paper to the consideration of the diathesis, is that I feel that this side of the question is too often neglected in practice, and that while the exact nature of this diathesis is theoretical, the treatment based on this theory is highly satisfactory.

Food Hygiene.¹

BY W. J. MOODY, M.D.,

Plainsfield, Iowa.



BERNETHY'S reply to the old Sea Dog, who consulted him for gout and indigestion, contained a mine of truth. "Would you expect a nation, or individual, to prosper, whose exports were constantly exceeded by the imports?" Think of the appalling aggregate of over a thousand meals annually, at each one of which a small amount is consumed in excess of the systemic ability to digest, oxidize, and assimilate; gradually the bowels become clogged, poisonous waste is reabsorbed, and neuralgia, headache, and low spirits supervene; the liver is unable to properly perform its functions, the kidneys become deranged, and, lastly, the heart overtaxed by redoubled efforts in pumping the blood through those

¹ From Food.

organs, thus engorged and partially disabled. The abnormal amount of work thus incurred by the heart, produces dilatation and enlargement, and if the pressure thus caused reaches a certain point, the serum strains through the coats of the blood-vessels, causing dropsy.

The sensation of well-being and cheerfulness, the chief constituent of happiness, is impossible without good digestion, while low spirits and a form of insanity termed melancholia are intimately connected with and largely dependent on malnutrition.

While considering the subject of healthful nutrition, it may be well to notice an idea constantly rehabilitated by the superficial and thoughtless, and which notwithstanding its hoary antiquity, and the fact that its falsity has been a thousand times proven, keeps bobbing up with all the pertinacity of youthfulness and honest intentions, and that is, the supposition that any nutrient, if it only contains the elements of bone and muscle, must *therefore* be proper nourishment.

Experience shows that all animals to be maintained in good condition, require the avoidance of concentration, thus, while sugar, fats, and starch are all highly nutritious, their use as food, in a pure state, is injudicious and hurtful, and particularly so when we add combination to concentration.

A few years since we were inundated by a "fad," which held that to keep in fine condition, the subject had only to gorge with beef-steak, and fill up the intestines with "good old ale." Bah! even now the boggy resembles Banquo's shade in that it will *not* down.

Meat used in moderate quantity is useful and nutritious, and in some affections is strongly indicated, but, as a rule, an immoderate consumption of it is not conducive to the maintenance of a high standard of health, and this applies especially to the sedentary and inactive, while among those past fifty, more than a very moderate quantity consumed is deleterious as a rule.

It is passing strange that so little attention is given to the subject of food hygiene, and that there is so great a lack of systematic training, in this regard, in the family. Quite often we observe children sit at table and sip coffee, syrupy with sugar and thick with cream; this with the addition of a slice of "rich cake" constitutes the entire meal. The cloying nature of these substances not only render them extremely innutritious, but they paralyze the appetite for substantial food, and, besides, rob the

little ones of their natural heritage, enjoyment in satisfying keen hunger and deprive them of zest and relish in satisfying it ; not only this, but the constitution is slowly undermined, and the foundation laid for an early breaking up of the constitution. In England the upper and higher middle classes are noted for their systematic training of the young in the matter of proper feeding. Is this owing to the permanence of position which they enjoy ? Whatever the cause, the result is that the average young Briton of position is a manly fellow of fine physique.

Were we to obtain reliable statistics as to the number of children killed by improper feeding, we should be appalled. How many parents boast that the baby is allowed to partake freely of all food prepared for adults ? These truthfully quote instances where children have been thus reared without any apparent evil consequences ; on the other hand, every physician of experience could quote scores of instances of death in infancy, caused by this practice, upheld by inexcusable ignorance and self-conceit. When the hot season comes, the digestive powers even of adults are very much impaired, while those of infants are often brought to a state almost justifying the term paralysis.

Then substances heretofore tolerated remain undigested and act as toxic irritants, while the nerve-centres, hypersensitive from the effects of heat, heave with the throes of terrible convulsions. "Providence," which often figures in these cases as a convenient scape-goat, is entirely innocent in the matter.

English medical writers, a few years since, laid a great deal of stress in contrasting the condition of starving classes in large cities with that of the so-called well-fed class, strongly inferring that the poorly fed were always feeble, whereas wealth and abundance were synonymous with vigor and robustness. Now, nothing is more strongly negated by observation than that luxury necessarily insures health and strength. Observe the rural population of any European country ; you find a massive and sturdy physique everywhere the rule. Now all the conditions surrounding these people are, as a rule, inferior to those enjoyed by ourselves ; the Irish peasant lives on the verge of want, in a miserable hovel without ventilation, while in the case of the Russian, indescribable filth and intemperance deteriorate ; but still we see massive forms capable of enduring great fatigue. If we seek the cause of this virility, after making due allowance for the decimation of the feeble in infancy by the hard conditions of life,

it is easy to eliminate all the factors except two,—viz., out-door labor and plain fare; but our New England farmer works industriously and still is dyspeptic, so we are forced to the conclusion that luxury and physical perfection exist in an inverse ratio to each other, and I defy any one to point to any people inured to coarse food who are not vigorous.

Results of Teaching Physiology in the Public Schools.¹

BY PROF. E. I. MOSELEY,

Sandusky, Ohio.



THE ability to read and write and to perform simple arithmetical operation is so evidently useful that even the illiterate can see the benefit children derive from learning these things. Beyond the grammar grades, however, the studies seem at first glance to have so little to do with the ordinary affairs of life that many persons possessing a fair elementary education regard it as a waste of time for a child to attend the high school unless he intends to fit himself for one of the learned professions. Rarely are these opinions entertained by those who have themselves pursued a high-school course, for the general result is so gratifying that, no matter what occupation they chose to follow, they feel well repaid for having spent their time in efforts at getting a secondary education. Yet if you were to ask one who had just graduated what good he got from algebra or Latin or almost any other high-school study he might be compelled to think for some time before giving an answer that would satisfy himself or you. What part each study plays in producing the good results that are seen to follow from a secondary education is difficult to define, and so diverse are the opinions of educators that there is hardly a study whose right to a place in the course has not been questioned, the question being

¹ A paper read at the last session of the Northwestern Ohio Teachers' Association, at Marion.

not whether the study is beneficial, but whether it is beneficial enough to take time that might be given to other subjects.

Training of the mental faculties is one of the objects of an education, and so important a one that in pursuing it we are in danger of losing sight of the fact that there are other objects to be attained. Useful knowledge may perhaps be interpreted to cover as broad a field as mental discipline. Both are afforded by every one of the studies in our high school courses, but in different amounts. The relative value of different studies in training the memory is a much disputed question. Perhaps it depends less upon the study than the manner and thoroughness with which the work is conducted by the teacher. The same is true of some of the other faculties, but in the development of that much-neglected faculty, reason, the sciences take the highest place.

Besides the disciplinary value of the different studies, each is useful for some knowledge to be obtained from it. Languages and pure mathematics fit the student to carry on other studies more intelligently; history, civil government, and political economy help him to understand his relations to the state and society; commercial law, arithmetic, and book-keeping have a direct bearing on his business relations with his fellow-men; physics and chemistry assist him to comprehend and use the thousand and one machines and appliances with which our modern life is so closely connected; botany, zoology, geology, astronomy, and literature inculcate in him a love of the true and beautiful and open up to his mind a field for observation and reflection that will be a source of healthful recreation throughout the remainder of his life. But what useful knowledge does the student get by studying physiology?

It might perhaps be shown that by revealing to him at the outset a living model, the human body, in which are exemplified many of the principles of physics and chemistry, physiology prepares him to pursue these sciences to a better advantage. Doubtless some would maintain that the thorough student of physiology has a better understanding of his relations to others, and that even from a business point of view the study would be of benefit by enabling him to select the more economical foods and to avoid being so frequently imposed upon by venders of adulterated foods and drinks. It may even be claimed that by teaching him correctly to interpret the impressions received from his senses he is better fitted to attend to all the affairs of life, and that by accus-

toming him to look for the physical causes of his varying moods and feelings it opens up to him a wide field for pleasurable and profitable observation and reflection.

These claims, which on careful examination seem to be well founded, would be sufficient in the minds of many teachers to give physiology a place in the course of study. But, be this as it may, let us pass these considerations to take up another which quite outweighs them all. In deciding what knowledge is of most worth, we have no better criterion than the principles laid down in the first chapter of that masterpiece on education which has been translated into more languages than almost any other English book, a book of which I found a Spanish translation in a library in the Philippine Islands of Spanish and Tagalo books among which there was not another one that I recognized as having seen before. I need hardly add that I refer to the work of Mr. Herbert Spencer. According to his analysis, the first and most important of the five sorts of useful knowledge is that which looks to self preservation. And when we consider the matter carefully, is not health more essential to happiness than anything else whatsoever? and in view of the fact that few people are really in sound health while a large number are very far from it, is not knowledge which tends to keep a person in health of the utmost importance? It only remains then to show that the study of physiology tends in any marked degree to secure this result and that other educators than the school cannot be dependent upon to impart the knowledge.

That students long remember some of their physiology and that their habits are in some degree permanently modified by what they learn must be evident to any one who has taught the subject for a number of years, but to ascertain more definitely how much they remember and what they put into practice, one hundred questions were recently asked of the pupils in the senior class of the Sandusky high school. The class consists of eight girls and seven boys, who had studied physiology four months at the beginning of their Freshman year,—*i.e.*, three years before, excepting one girl who had studied it at Port Clinton a year and one boy at Berlin Heights about as long. Besides the four months of class work there were four public lectures given by the teacher of physiology the year that this class studied it, and these were attended by some of them, and in their Junior year all of the present class heard a series of talks on sanitary science given by the same

teacher before the whole high school, these occupying fifteen minutes each and coming three times a week for fourteen weeks. There were several reasons for selecting this class to answer the questions. 1. As three years had passed since they had studied the subject, it was thought that whatever impressions they retained or habits they had formed or given up in consequence of it would be likely to continue throughout their lives. 2. They were all students who could be trusted to answer the questions regarding their habits carefully and truthfully. 3. Being better acquainted with the teacher, they would have less reserve and be less likely to give evasive or ambiguous answers or change their practices temporarily so as to make a more favorable impression upon him. Further precaution was taken to prevent producing any embarrassment that might arise from direct questions as to their habits by asking in every case whether they did a thing in consequence of having studied physiology, a mere negative answer not implying whether they did not do it at all or had always done it. This precaution, however, proved unnecessary as they answered the questions without reserve, in many cases taking the trouble to explain just what they meant. To give them time to consider whether their practice regarding each of the things referred to in the first fifty questions had been modified by physiology and sanitary science, the list was handed to each to answer by himself at his leisure. The remaining fifty questions, involving their knowledge rather than practice, were given in class.

The girls answered affirmatively on an average thirty-two questions out of the forty-nine, one question on smoking referring only to the boys, and the boys twenty-eight out of forty-nine, one question on tight clothing about the waist relating only to the girls. About two-thirds of the remaining answers were negative because they had practised them before studying physiology and therefore did not need to change, while of the remaining six or seven some were of minor importance or had been barely noticed in their book or by their teacher, leaving very few which the difficulty of forming new habits or of giving up old ones or mere neglect had prevented them from carrying out.

Two considerations modify somewhat the force of these seemingly remarkable results. 1. These fifteen pupils were more conscientious than the average of those who studied physiology at the same time but who dropped out of school or graduated before reaching the fourth year. The very fact of their studies

having made a deeper impression upon them accounts for their having continued longer than their fifty comrades who stopped before the course was finished. This consideration, however, is partly counterbalanced by the fact that, coming on an average from better homes where hygienic laws were more fully practised and taught to the children, they had less to learn in this regard.

2. Many of the questions inquired not as to complete change of habit but merely as to whether their study had caused any improvement. Among the more interesting results of this inquiry we may notice the following: All of the fifteen take better care of their eyes than before studying physiology. To the question, Do you give more attention to the direction of the light when you are reading? every student answered yes. Are you more particular to avoid a fading light or reading lying down? Eleven answered yes. Did you learn other things about the care of the eyes which you put into practice? Thirteen answered yes. Twelve bend forward less when sitting and ten walk more nearly erect, three others thinking that they do also, but being uncertain. Five of the girls and one boy take more exercise than before, all of the girls and four boys are more particular about getting some exercise each day, and six girls and two boys have more regard for getting exercise at about the same time each day. Four boys and four girls bathe oftener than before, five of these eight and four of the remaining seven being also more careful not to omit a customary bath. Nine of the class are more particular to avoid bathing after a meal, and eleven had learned other things about bathing which they put into practice. Eight brush their teeth more than before, twelve use them less for cracking nuts or biting thread, and twelve learned to do other things tending to their preservation. One boy and one girl are more careful than they were before to avoid tight shoes or those with high heels, nine are more particular about taking off their rubbers on entering a building, ten are more careful to avoid changing their garments during the day or in the evening for thinner ones, and twelve had learned other things about clothing that they put into practice. To the question put to the girls, Are you more careful to avoid wearing tight clothing about the waist? one answered yes, most of them said they never had worn it too tight, and one replied, "I do not avoid tight clothing about the waist but enjoy it to a moderate degree, but I would never carry it to extremes owing to the injurious effects on the system (and also the uncomfortableness)."

The answers to the questions on ventilation were alone sufficient to convince any hygienic reformer of the expediency of teaching physiology and hygiene in the public schools. The first was, Do you ventilate your bedroom more thoroughly? Please specify how or when. All except one, who thought his always had been ventilated enough, answered yes. Characteristic answers were, "Yes, open the windows during day and leave them open all night in summer, and leave one open an inch all night in winter;" another, "Yes, leaving the window open except on exceedingly cold nights, and all day;" a longer answer, "After studying physiology, my family at first believed me to have metamorphosed into a ventilation crank, owing to my persistence in providing the proper amount of fresh air for my bedroom, and other places of the house where I stayed much. But since then I have completely brought them around to my opinions on the subject. I always open the window wide after dressing, and after it is thoroughly aired I shut it, all but a couple of inches from the top, where it stays all day and during the night." Nine answered affirmatively the question, Has your study of ventilation been the cause of any other part of the house being better ventilated? A part of the other six thinking their houses always had been well ventilated. Eleven are more particular about having good air at school, church, or other places besides home; six breathe through their mouth less than before, one saying, "I used to think when the air around me happened to be very impure, or had a disagreeable odor, that if I breathed through my mouth and closed my nose I could receive no impurities, just because I could not smell. But this false idea was corrected and now I seldom breathe through my mouth." Eight are more careful to avoid the contagion of consumption, diphtheria, and other communicable diseases, most of the rest saying they always were careful or had never to their knowledge been with any person suffering from these diseases. Twelve had learned to avoid ways of taking cold not referred to in any other question. Ten had learned something about curing a cold which they had put into practice successfully, five of the ten mentioning the plan of inducing perspiration by exercise.

To the question, Do you use alcoholic drinks less? six answered yes, the remainder having never been in the habit of using them. Are you either wholly or partly, on account of studying physiology, a total abstainer? Nine answered yes. The

remainder, excepting one girl and one boy, have long practised total abstinence from alcoholic drinks. Do you think that because of what you learned in physiology you have ever had any influence, either by words or by example, on either the opinions or the conduct of any one else in regard to the use of alcoholic liquors? Six believed that they had, while three others thought it possible that they had had some influence.

To comprehend the full meaning of the answers to the last three questions, it is necessary to consider that Sandusky is not a town where temperance principles are popular. With the exception of a single one of the smaller churches and those societies founded for the express purpose of promoting such reform, the temperance sentiment in the high school is probably stronger than in any other organization in the city.

The next question, put only to the boys, read, Did what you learned of tobacco in physiology lessen the liability of your falling into the habit of using it? Five of the seven answered yes, a sixth felt sure he never should have used it anyway, and the seventh, who is a member of a brass band, does use it. Do you know of any person whose ideas concerning the use of tobacco have been modified for the better in any way by your influence? was answered affirmatively by three girls and one boy. Do you (or any of your friends) have less faith in medicine or realize more fully the harm done by it? Eleven answered yes, one of them saying, "The extent to which my opinions on the medicine question have been influenced is unlimited. I may have gone to an extreme, but I am still well and strong, notwithstanding I have used almost none since I studied physiology." Do you give less credence to patent medicine advertisements? Ten said yes; the rest never had any faith in them. Nine use less tea or coffee or none at all since studying physiology, and two of the other six never used them. Six are more careful than they were before about eating pork that has not been thoroughly cooked, or veal. Five eat more brown bread than before, eight less cheese, four less of spices, some of the others saying they never did use much. Eleven are more particular to masticate their food well. Five are more punctual at meals, and four eat less between meals. All but one are more careful about the drinking water they use, a fact shown not only by their answer, but by their willingness when on excursions with their teacher to remain thirsty for some time rather than drink water of a questionable character. In the minds

of many sanitarians their knowledge of the subject of drinking water would be considered of enough value to pay for many weeks of study. Six of the fifteen are more careful than before about getting regular sleep, and ten in regard to letting enough sunlight into their rooms or houses.

The answers to the fiftieth question—Name another important thing that you learned to do or stop doing by studying physiology—were varied, some specifying several things, one saying they are too numerous, another ending with the sentence, "Physiology has done me a great deal of good in a number of other different ways," and a third, "These forty-nine questions embrace about all I can think of at present, but there is no doubt I have been much influenced by my study of physiology and lectures and talks since then, and I shall always consider it among the most beneficial, important, and interesting of the subjects I have studied."

The fifty questions asked in class may be passed over more briefly. The answers of the first thirty involved a knowledge of hygienic rules or the principles on which they are based, many of them, though highly practical, admitting of only occasional application instead of applying, as did the first fifty, to daily life,—*e.g.*, What harm in trying to get an infant to stand before it seems inclined to make the effort? What is coagulation for? How is typhoid fever usually caused? Name three ways in which the contagion of consumption may be taken into the system. For persons with what affection is chloroform especially dangerous? If blood spurts in jets from a cut, is it from an artery or a vein? Is it harder or easier to stop than from the other kind of blood-vessel, and why? Tell two or three things about stopping the bleeding. Is a fireplace or stove better for ventilation? Is a fireplace better with or without fire? Any way of opening a window so as to avoid a draught that might otherwise be felt? What harm in ice-water? What would you do for a person who had fainted, what for a person partly drowned, what for a person who had taken poison? What is the principal objection to having a tooth pulled when it aches? Of these thirty questions, $22\frac{1}{3}$ on an average were answered right, and $3\frac{7}{8}$ were partly right. The next ten were purely physiological, and not so evidently capable of useful application,—*e.g.*, What is the pancreas for? Where is the nerve centre that controls respiration? Name three sets of organs by which water is excreted. Name two uses for the fat of the body.

Of these ten an average of $4\frac{9}{15}$ were answered correctly, and $2\frac{2}{15}$ were partly right. The last ten questions related to anatomy, as, What is the ulna, the aorta, the pleura, etc.? Of these ten an average of $5\frac{13}{15}$ were answered correctly.

That there are many important laws of health which children are not likely to learn at home or anywhere outside of school is shown by the fact that every one of these fifteen students of the senior class probably comes from a home where even before he studied physiology the laws of health were better understood than in the average of homes. One of the girls is a daughter of a good and intelligent physician, and yet she answered thirty-one of the first fifty questions in the affirmative. Some parents do not take the time to explain hygienic rules to their children, some say little or have little influence because their own habits, firmly fixed upon them before they knew their harm, prevent them from setting a good example, but a much larger number have no very positive knowledge regarding many hygienic laws. When the parents of the children now in our high schools were students themselves, sanitary science was still in its infancy, and physiology had hardly become a common study. Even our college professors are, some of them, ignorant of its plainest teachings. Well do I remember, for who that was in his class could forget it, how the instructor, now professor of history in Michigan University, insisted on keeping all the windows closed in spite of the protests of the boys, who, crowded for a whole hour into a small room, were compelled to breathe that stifling air over and over again till the injury done to the health of some of them must have been greater than all the history they learned could atone for. They could have told a great deal about the divorces of Henry the Eighth's wives, the intrigues of Queen Elizabeth, and the idiosyncrasies of James the First, but it is doubtful if one in five could have told a single thing about the Black Death of which more than half the people of England perished in less than two years.

Nor can we depend upon the newspaper to impart instruction in hygiene. Save those who are foolish enough to pin their faith to patent medicines, people suspect that every article on health may turn into an advertisement of one of these humbugs, and the few they venture to read they do not know whether to believe or not.

Physicians only now and then take the trouble to tell people

how to keep well, they have enough to do to cure them when they are sick.

It is only by studying the science that students come to understand the meaning of the laws of health and see the importance of their application. The vast majority of those who have not learned differently in school, but rely upon ancestral tradition, or old maids' sayings, or on what they are pleased to call their common sense, still believe that diseases are unaccountable things or to be accounted for only as visitations of an inscrutable providence, and to be driven away only by mysterious medicines. They have a horror of night air; any other, if it does not smell bad, they think must be all right, and so sure are they that water which looks clear and tastes good is harmless that they do not hesitate to drink it, even if it comes from a cemetery pump. They have learned that wells drain an area whose radius is equal to the depth of the well, that freezing will kill anything in water, if not, filtering will surely make it pure. They think that because the flesh of an old animal is tough, the younger the creature, the better the meat must be, and they are sure that any article of food or drink which very old people have used all their lives must be exceedingly healthful. Beer makes people stout, and is therefore strengthening, and as liquor makes a man feel warmer it must help him to resist the cold. Their *common* sense is not enough to tell them that the dram-drinker feels warmer because the alcohol causes his blood to come more freely to the surface, and for that very reason it will cool off the faster. It takes more than *common* sense to show that in every case alcohol causes a lessening of the temperature and a greater liability to freeze on exposure. The scientific study of the effects of alcohol on the human system will have an abiding influence on the conduct of the student, and give a weight to his influence upon others compared with which the outbursts of enthusiasm which follow a sensational temperance lecture, useful though they may be, are mere trifles.

The great majority of children mean to do what is right. In a kindly way, without exaggeration or any concealment of the truth, give them convincing evidence of what course is right and neither stubbornness nor the inherent difficulty in changing old habits, nor in the case of the more sensible ones, even the influence of a nearly universal custom to the contrary among their associates will prevent them from following it. I say then, em-

phatically, teach physiology and hygiene by precept and example in the primary and grammar grades, teach it in the high school as a science, and do not exempt those who are preparing for college on the ground that they will not need it.

**Precautions to be taken by Physicians, Ministers,
and Undertakers in Diphtheria and
Scarlet Fever.¹**

BY G. B. SPENCER, M.D.,

Health Officer, Weston, Ohio.

HAVING seen in the limited field of my observation as a physician—and what is my small country village to this great world full of heedless and criminal negligence—a lovely family of children, the joy, the pride, the hope of devoted parents, swept to premature graves, and the four little mounds in our village cemetery stood silent monuments to the criminal negligence of the physician who diagnosed malignant diphtheria as croup, and who, from lack of proper precautions in his first case, allowed the germs of disease to run riot in that household.

The only case of scarlet fever I ever lost, a robust, stubborn little fellow of five, fell a victim to the deadly germs, wafted on the wings of a missive of love from one mother's heart to another. A lady in Lancaster, in the next county south of here, sitting in the sick-room of her two children, then recovering from scarlet fever, to while away the tedium of nursing, with disease-laden hands on contaminated paper, wrote to her sister over one hundred miles away, in Wood County, where the mother unthinkingly gave to her little man the poisoned envelope that to the child was as deadly as the distillations of the fabled Upas-tree. No physician had warned the watcher of the transmissibility of scarlet fever by mail.

A physician of my acquaintance, one of those who have no fear of contagious diseases and who deride the probability of carrying infection from one house to another by means of the clothing, went to his own home from a case of scarlet fever, with-

¹ Read before the Ohio State Sanitary Convention.

out any change of garments or efforts at disinfection, and in his fatherly pride took on his lap his own bright little daughter of 6 years of age ; in less than three weeks that doctor had recorded in his heart, and on his crape-laden door, the severest lesson that can be given to man on the great importance of guarding against infection.

We had an epidemic of diphtheria that arose like the fabled sphinx from the ashes of its death, by allowing the body of a child that had died, according to the doctor, with "croup, complicated with pneumonia," to be exposed to view in a public funeral ; and innocent children, with that last look at their loved playmate, gathered those germs of death which ere long should reunite them in that land where mistakes are not made.

The worst case of scarlet fever I ever saw that was recovered from was contracted while the little girl was playing out in the front yard with two playmates, who had what the doctor called "scarlet rash." "No necessity of keeping them in ;" "it isn't contagious," etc.

I have had two cases of scarlet fever this winter, both severe cases, brought from a village six or eight miles away, by a carpenter employed at his trade about the house, and in whose family, at home, there had occurred but recently a case of scarlatina, which the attending physician had informed the father was "not nearly as catching as scarlet fever." Now, what do these cases show? I might go on and cite many more cases, the parallel of which has occurred in the experience of every physician here to-day.

I have only cited these few cases from my own limited experience for the purpose of illustrating in advance the following four items, which, if taken together and lived up to strictly, will furnish wide and deep foundations for all the precautions necessary for physicians to observe in caring for contagious diseases :

(1) Accuracy of diagnosis ; (2) an adequate sense of the vastness of the evil germ of contagion when once loosened ; (3) a thorough knowledge and appreciation of the value of sanitary regulations involved in the seven topics on our programme for to-day's discussion ; (4) a due valuation of human life, and a knowledge of our responsibilities as physicians.

The programme limits me to only ten minutes in which to discuss the vastness of these four items, hence I must hasten.

The first item,—“Accuracy of diagnosis.”

For a physician to be able to take due and proper precaution against the spread of diphtheria or scarlet fever, he must first know that he has in charge such a case. To have on hand such a case, and not to *know* it, or not to have a full appreciation of the direful consequences of its dissemination, is like placing matches in the hands of children, or a firebrand in the custody of a madman. It has been said facetiously, "That a doctor is the only person who can cover up his mistakes." It is a sad travesty on our profession that errors in diagnosis necessitate the covering up of many mistakes by doctors. We hear of small-pox being called chicken-pox, measles, etc., until the harvest of death changes the diagnosis, so croup for diphtheria, spinal meningitis being called malaria, etc., and the mistakes occur and their results are buried. The immortal motto of Davy Crockett, "Be sure you are right, then go ahead," should be emblazoned on the heart and conscience of every physician.

To insure accuracy of diagnosis, two things are required of the physician, and those are intelligence and a trained skill in observation. Then hasten the day when the legislature of Ohio shall place upon our statute books a wisely devised law that shall prohibit quacks and ignoramuses from masquerading as physicians; when the proper care that every State should have for the lives and happiness of her people will reach out with a strong hand for the ignorant and unprincipled, who tamper with human life in the broad field of medicine, as effectually as she does in the realm of mechanics, or in the depths of her mines.

Accuracy of diagnosis. No mistaking death-breeding diphtheria for non-infectious croup. No belittling the *lethal* powers of scarlet fever, though masked beneath the benign cloak of *scarlatina*. And as we remember that "to err is human," and as we *are* human, and hence liable to err, let us always bear in mind that there is one direction in which a physician can err with good to his patient, and a calm conscience for himself. An error on the side of *caution* is "*a good thing*." It is better to isolate and quarantine ten cases of simple follicular tonsillitis for diphtheria than to treat one case of diphtheria for croup. It is better to *unnecessarily* hang on the outer wall of life's fortress the yellow banner of contagion than to throw wide the gates and with ruthless hand sow the dragon-teeth of deadly disease that shall spring up armed men of death to take advantage of our negligence.

My second proposition,—“An adequate idea of the vastness of the evil genii of contagion, when once loosened.”

It is an old saying that “fools rush in where angels fear to tread.” The wise physician, the man of knowledge and experience, walks guardedly into the dread presence of contagion. Like the brave soldier of a hundred battles, he walks into the familiar court of death with a full knowledge of possible consequences, but yet with the high sense of duty which is the acme of bravery.

When Aladdin touched the secret spring in his wonderful lamp, and released the gigantic evil genius, whose dark form spread like a pall of smoke over the whole heavens, he did but prefigure the careless physician, who allowed the germs of contagion to pass unchallenged beyond his control.

No toil can gather together again the thistle-downs which a puff of summer breeze has scattered. No zeal can call together again the germs of disease that the idle hand of negligence has allowed to escape from its grasp. Let us realize, then, the power and cruelty of contagion when it bursts the bonds of quarantine; it spares not the gray hairs of age, the mature calm of motherhood, the bright hopes of youth, or the helplessness of infancy. Let us learn to hold it as you would hold a viper once safely in your grasp. If called to a case of sore throat, separate it at once from the others of the family, and watch carefully its invasion. Five hours at the front end of diphtheria are worth more than an eternity behind it. A dose of strychnia one-half hour the start of you means *death*. Timely and prompt measures alone can save. So with diphtheria. Don't loosen its evil genii by mistake of diagnosis, delay of measures, or lack of consideration for its powers of evil. This holds good in all cases of contagion.

My third proposition,—A thorough knowledge and appreciation of sanitary regulations involved in the seven topics of our programme for to-day, especially those of quarantine and disinfection, so ably impressed upon us by Dr. Stutz, health officer, Upper Sandusky, and by Dr. Stanton, of Cincinnati, member of our State Board of Health.

In those two great principles, quarantine and disinfection, shutting up and killing, lie the redemption of this world from the power of contagion. It is unnecessary for me to say more on this division of my topic, so I pass to the consideration of the fourth division.

"A due valuation of human life, and of our responsibilities as physicians," apparently two topics, but yet indivisible.

If we appreciate properly our responsibilities as physicians, how can it be otherwise than that we shall hold at their proper valuation the lives of our neighbors and neighbors' children. It is a beautiful saying that "he who makes two blades of grass to grow where formerly but one appeared shall be counted as a benefactor of his race." How much more so, then, the physician who, by his skill, his accuracy, his promptness, shall cause the bloom of life and the white banner of peace to show in the realm of contagion, where formerly death and despair reigned supreme. How must the soul of the immortal Jenner fill with ineffable joy as he views a world practically redeemed from the terrors of small-pox. In the advanced light of to day, the great London plague could not exist. Advanced knowledge of its cause, care, and treatment has brought down the death-rate of scarlet fever almost to a par with measles. When we have educated the people to study and know the proper sanitation of their water-supply, and the value of pure air, diphtheria will also lose its terrors. This brings me now to the other general divisions of my topic,—viz., the precautions to be taken by ministers and undertakers.

And here I wish to say and emphasize the saying that all the precautions necessary to be taken by ministers and undertakers in the management of their part of the work of consigning to the grave a patient dead of contagious disease is to be very careful and obey promptly and fully all the directions of the attending physician.

What! Does not our obligation end when the patient dies?

No! No! Not until the disease-laden body shall be resting quietly in the great disinfecting bosom of our mother earth, and the sorrow-stricken home been properly fumigated and disinfected can the responsibility of the physician cease.

No carpenter must go forth from that home, with disease-laden clothing to spread the scarlet fever in homes eight miles away. No mother in that home must write letters of love with death-tainted hands on infected paper, which shall be as apples of Sodom in some happy home one hundred miles away. No physician, careless from his familiarity with disease or lack of appreciation of its fell power, must go as a disseminator of disease to his own home. No funeral services must gather the people into the clasp of contagious diseases. No open coffin must spread

the germs of death. No children tainted by even a mild suspicion of contagion must be allowed to greet the uninfected. All these matters fall within the province of the physician, and he does not do his full duty to himself, to his profession, and to his God who does less than this.

Alcohol.

BY JOHN C. McCANDLESS,
Chicago.

RELATIVE to a paper which appears in the May issue of ANNALS OF HYGIENE, "The Truth about Alcohol," I would offer a few remarks for publication. I believe as Mr. Irwell does that alcohol is not a food or heat-producer, and in addition would say it is not a medicine. Alcohol is generally conceded to be a poison, but I object to Mr. Irwell's definition, "A poison is a substance which when taken into the body causes death and disease." A great many substances can be taken into the body and produce death and yet not be a poison, but I will not take up space to instance more than one, and that is water in cases of drowning. Surely no intelligent person will believe pure water to be a poison.

Any substance with an inherent tendency to destroy bioplasm (living matter) outside of mechanical force would be a better definition. Let us trace alcohol a little further. A doctor (not a trained nurse) is called in to see a patient and he makes a diagnosis, etc. He says a stimulant is indicated, so he prescribes alcohol in some form or other. The "medicine" is brought to the sick-chamber, and the patient,—possibly an M.A. (Oxon.),—"for the pleasure of taking it," performs the unfledged act of swallowing without discrimination. This "stimulant" (poisonous irritant) passes to the stomach and is taken up into the circulation.

If alcohol kills bioplasm, as can be demonstrated under the microscope, then what influence does it have on the corpuscles in the nutrient fluid of the body? Why, it kills as far as it goes because it has the inherent property to do so, and quantity does not alter quality.

True, the sum total of the living matter may not be extinguished with a given amount, but it is rank sophistry to talk of a toxic and medicinal dose. Any quantity is a toxic dose. The histological examination of the drunkard's tissue confirms my statement. An excess of formed material with a diminished amount of bioplasm (living matter) in the cell is pretty good evidence. The chronic drunkard's power of endurance, like the opium fiend, is always less than the total abstainer. Hence, the greater uncertainty in the operating-room.

A stimulant that causes the heart to throw out less blood, as is witnessed in the rapid thready pulse after alcohol, a medicine that reduces vitality and extinguishes life, and a triangle without angle or sides, are very much alike.

My reason for speaking of alcohol as a medicine is because the whole truth is not told in the paper referred to. The quotation of Sydney Ringer leaves room to infer that alcohol may be good for the sick. It refers to the healthy alone, and if he intended readers to infer that alcohol was good for the sick, then I say Mr. Ringer was not healthy when he said it.

Mr. Irwell denounces the teaching of *materia medica* to nurses without instructions in chemistry as a farce. His denunciation, however, will rest greatly with his own personal influence and importance. Possibly he imagines the human body to be somewhat similar to a chemical laboratory.

6007 ELLIS AVENUE.

Disinfection of Vaults and Cesspools.

Dr. Vincent recently reported to the Academy of Sciences at Paris, the result of experiments for the purpose of determining the best disinfectant for rendering faecal matters innocuous. He required of each disinfectant that it should kill all pathogenic microbes, including the *bacillus coli communis* and the bacteria of putrefaction. His experiments showed that the best of all disinfecting agents for the destruction of faecal matters in vaults and cesspools is sulphate of copper employed in connection with 1 per cent. of sulphuric acid. The quantity of sulphate of copper required was one pound for every three cubic feet of faecal matter mixed with urine. Half this quantity was found sufficient to destroy the cholera bacillus. It was found necessary that the disinfectant should remain in contact with the infectious material for at least twelve hours.

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

A Warning to Americans.

ONE that they will heed not, but one that must be uttered, since its neglect is bringing us to a position, from a physical stand-point, the ultimate outcome of which ought to be a question for most serious consideration. Go to London and try to do business before ten or eleven o'clock in the morning, and learn how impossible it will be; because the Englishman is thoroughly imbued with the idea that business is an incident of and not the sole aim and end of life. There is no nation of the world wherein work is regarded as it is with us; no other nation "lives that it may work," as we do; they "work that they may live;" they thoroughly live while they live; we toil and slave that we may leave money to those who, because of our very work, will not inherit the vital strength to properly utilize and enjoy it.

Individual exceptions might seem to negative our assertion, but we are not dealing with individuals, but our nation as a whole, and as a whole we fear not contradiction of the assertion that the great American nervous system is in a deplorable condition of prostration, and that this lamentable condition of affairs has been the direct outcome of our methods of work, particularly during the past thirty years.

The mammoth business enterprises, the colossal financial schemes that have marked American history since the close of our

"Civil War," have required prodigious nervous energy for their accomplishment and successful maintenance; but, at the same time, the human body; the human machine that has conceived and engineered and carried to accomplishment these various designs; these bodies of ours have not ceased to require nervous energy, or force, for their own maintenance in a state of integrity.

Force can be diverted from its natural channel, but, when so diverted, that which nature designed that it should do, must be left undone or, at best, but incompletely performed. In the designs of nature it was contemplated that the nervous force, or nervous energy, constantly created by the nervous machine, or system, within each one of us should be utilized in the maintenance of our own bodies in a state of health and comfort, and for the reproduction of healthy bodies like unto our own.

Our independence from Great Britain was struggled for and won by men and women who were possessed of good nervous systems; in those days people moved slowly; if this same question of independence were to arise to-day, it would probably be settled by a war of eight days, instead of eight years. From the days of the Revolution down to the period of our "Civil War," our country was developed *naturally*, along the lines of natural development, that must always hold in all new and naturally rich countries. Whether it be that the alleged relative increase in the amount of oxygen in the atmosphere had anything to do with it, or whether the new atmospheric stimulant, *argon*, first became, at this time, an ingredient of American atmosphere, we do not know, but the fact remains that just after the close of the "Civil War" commenced the era of gigantic enterprises that has revolutionized the world.

Those who conceived and managed these enterprises were, doubtless, possessors of splendid nervous systems capable of producing prodigious quantities of nervous force, and had they been content to utilize this force in the development of the natural resources of the country, in the accumulation of fabulous wealth, and in the ultimate ruination of their own individual health and premature death, then we need but pity them.

But no, the most important function of nervous energy, that of procreation, was utilized by these overtaxed victims of national development, the results of which the physicians of to-day are daily encountering in the deteriorated nervous systems of the

offspring of those who ruined their own nervous systems and those yet to come by this high-pressure work.

In Nature's design the *young* man and woman should never think of health any more than the multi-millionaire should contemplate the possibility of poverty ; the absolute possession of the one, as of the other, should be such instinctive security that a thought to the contrary should never enter the mind.

But such is not the case ; take a gathering of young persons from the upper strata of society, and, ten to one, they are not together many minutes before the subject of health and a recital of the aches and pains and fears of each forms a part of the conversation ; not uncommonly, even, is this noted in gatherings of children. Now, why is this ? Health, perfect health, is, so to speak, a negative condition,—that is to say, the perfect working of a perfect organism is not sensible to the consciousness of that organism ; hence a perfectly healthful person will not be conscious of the fact that he is so, only in so far as the absence of unpleasant sensations will not make him conscious that he is not so, hence, as the logical outcome, the perfectly healthful *young* person will not think or talk of his health or otherwise.

When, therefore, we hear those who ought to be healthful talking of this subject, we can rationally conclude that there is something wrong, and this defect, we believe, is to be found in the inheritance of a more or less deteriorated nervous system from a progenitor whose nervous force has not been able to meet the demands of the "rapid life" of the past thirty years without drawing on his principal, as the inevitable result of which the nervous fortune that he bequeaths must be inferior to that which he receives.

These thoughts have been brought about by practical experience, because of the almost universal evidences of "poor" nervous systems in the *young*, as well as in the old, which daily practice sets before us.

The warning is obvious and needs no further comment.

Inconsistencies of Physical Culture.

THE spectacle of a young woman whose health has been already seriously deteriorated by the conventionalities of fashion taking up with the fad or craze for "bloomers" and "physical culture" suggests to our mind a few reflections upon this subject. It is a great pity that we cannot, in this

country, become more familiar with nature and the teachings of nature. There can be no question in the mind of a thoughtful observer but that we are a people of impulse, and that, on the whole, our impulses are not salutary.

It is true that the exigencies of development of a young countrywoman make demands upon the energy of those who are developing it, and that it is almost impossible to escape therefrom; but it is equally true that these demands are working an injury to the physical welfare of our people, the full extent of which and the ultimate results of which are appalling to our contemplation.

Bloomers, parallel and horizontal bars, the trapeze, and all the varied accompaniments of the physical culture *fad* may be attractive to the impulsive nature of the girl or woman who lives upon "*fads*," but for one whose vitality has been sapped by the exigencies of fashion, they are positively injurious.

Natural life in the fresh air, regular hours, plenty of oxygen; this is the form of physical culture best suited for our girls and prematurely-aged society women.

What the Children Eat.

The habit some mothers have, when seated at table, of asking, "What would you like, Georgie?" "What will you have, Helen?" instead of helping the children to some portion of suitable food and take it for granted that they will eat of it and be satisfied, is a most potent element in the downward training towards sensuous gratification and the establishment of a love of appetite in a child's character. A child thus treated grows to think he *must* have what he *likes*, whether it is good for him or not. It is not strange that an appetite thus pampered in childhood becomes uncontrollable in maturity. The natural, unperverted taste of a child will lead him to eat with a relish that food which is best for him.

The child's appetite can be educated to enjoy all wholesome foods, if mothers are true to their duty; but like the formation of all traits of character, this training will be easiest accomplished at the beginning of life. "It is difficult to turn the course of the great river, but that of the small stream at its source may be easily changed."



Sanitarium for Consumptives.

At Liberty, N. Y., there will soon be built a new rural retreat for consumptives, for which purpose \$20,000 has been contributed by Mr. J. Pierpont Morgan. The location has a high reputation for salubrity and attractiveness. Its easy accessibility to a large population, needing a sanitary retreat less remote from the metropolitan district than are the Adirondacks, will tend to build it up even more rapidly than that on the Saranac.—*The Sanitarian*.

Turpentine against Grippe.

A despatch states that in a factory at Vanclue, France, thirty-five out of forty hands, who worked in a certain wing of the building, had grippe, while a like number, who worked in a department in which turpentine was freely used with lithographic machines, entirely escaped. A similar state of things has been observed in seven other factories. M. Naquet, who reported these observations to the Paris Académie de Médecine, thinks the immunity was due to the turpentine.

Sanitation in Prehistoric Times.

A numerously-attended conversazione was held at Owens College recently in connection with the sanitary conference. During the evening Professor Boyd Dawkins gave an interesting and amusing address on the Indications of Sanitary Progress in Prehistoric Days. The very earliest man of the pliocene age was only distinguished from the wild animals about him by being clever enough to fashion implements and use fire, and it could not be said that he was sanitary or insanitary. His successor, palæolithic man, was the user of the polished stone axe, the introducer of the domestic animals, he had a fixed habitation, and he invariably chose dry areas for habitation. In the neolithic man we have the first evidences of his living in a community, but the refuse was left in his habitation and he was ignorant of water-supply. He always selected, however, those spots where there

was natural drainage, and he was the first tiller of the ground. The most important developments of sanitary appliances are found at the close of the bronze and in the iron age. There was a most elaborate system of refuse heaps, particularly shown in certain camps that had been explored by General Pitt Rivers, and especially in one near Lewes. But there was no evidence of any artificial water-supply. "But neither in the neolithic, the bronze, nor the prehistoric iron age were there any interments allowed within the area of habitation." In the bronze age evidence that cremation was the rule was to be found in the limestone ranges of Derbyshire and the chalk downs of Wiltshire.—*London Lancet*.

Three Chief Causes of Disease.

The three most predisposing causes of disease are the excess of heat, damp, and cold, the worst of all being the latter. The best rule to follow is never to allow the medium in which you live to draw warmth from your body, but, on the contrary, to make it supply you with this necessary of life. The only exception is that of muscular action: this engenders caloric, and then a fire may be dispensed with; but as soon as the body returns to its normal condition it should immediately be transferred to a warm atmosphere until the skin has returned to its usual state. In a word, the system ought always, in summer as well as in winter, to be protected from chill.—*Family Physician*.

The Duty every Citizen Owes the Schools.

If the public school, in those sections of our cities where our most intelligent and influential citizens have their homes, are unsatisfactory, they could speedily be made as good as any private school, were the same interest manifested by the tax-payers as is shown when an undesirable pavement is laid, or a company threatens to provide rapid transit before their doors. Unfortunately, that same spirit of aloofness which has in the past operated largely to exclude this element in the nation from participation in the affairs of popular government seems to be at the bottom of this matter. Certainly much progress has been made in the last twenty years in remedying the political evil, and the public good appears to demand a change of front from the same

class of people on the subject of common education, unless we are prepared to advocate the existence and growth of a favored special class, out of touch with and at heart disdainful of average citizen.—*From April Scribner.*

An Anti-Corset League.

Every month brings us news of a new "anti-" society. The London papers inform us of an Anti-Corset League, which has been organized at Liverpool.

The objects of this association consist in inculcating true principles of clothing, which neither offend the eye nor the requirements of health. The use of the corset will be specially discouraged, but its place will be taken by an easy and natural form of support, consistent with the wholesome development of the body and the due exercise of its functions.

This easy and natural support is not to be the male arm, as might be supposed by frivolous minds, but is a pliable, plaited affair, conforming to hygienic principles and the natural curves of the trunk. There is no article of apparel which has been so vigorously, and we have no doubt justly, criticised as the corset; but it stays just the same, and we fear it will continue to do so. However, the Anti-Corset League has our sympathy and support. The corset is always a source of some danger, and in a good many cases does positive harm.—*Medical Record.*

Microbes and Money.

That money is the root of all evil is one of the stock platitudes of the pulpit, but probably the preachers themselves do not fully realize the vileness of the gold and the filthiness of the lucre they are so fond of denouncing. That thriving colonies of microbic "small deer" are found on bank-notes is one of the many uncomfortable revelations we owe to bacteriology; and it is equally well known that the germs of contagious diseases circulate with the metallic currency. So impressed with the danger arising from this source is Professor Demosthenes, of Bucharest, that he urges medical men to use strict antiseptic precautions in receiving their fees. He describes the practitioner who attends a case of scarlet fever or other infectious illness, receiving money which has been

under the patient's pillow or, at any rate, in contact with him. Then he goes straight to the bedside of another sufferer and feels his pulse, and touches various parts of his person, giving the microbes received with the fee from the first patient an excellent chance of finding fresh pastures. In course of time the doctor returns to the bosom of his family laden, we are led to infer, with precious metals and bank-notes, and distributes the day's catch of microbes among his children in returning their caresses.

This is a terrible picture, but it suggests to our minds certain reflections. In the first place, it does not appear superfluous to inquire whether it is not the custom of our brethren in Roumania to go through some process of purification, at least to the extent of washing their hands before they pass from one patient to another. Again, are all Dr. Demosthenes's brother practitioners paid in ready money? We imagine that many doctors of this country would cheerfully take the risk of contagion if they could get the cash. Professor Demosthenes concludes his discourse with the warning, "Be on your guard against your patient's money." —*British Medical Journal*.

Kisses and their Varieties.

Kisses may be conveniently divided into two classes, those which belong to and are intimately associated with the warmer passions of the heart, and those which are purely conventional. In view of the exacting demands of modern sanitary principles, in neither case is the habit desirable or even permissible. Nevertheless, it is only a waste of labor for medical mentors to protest against the habit so far as the first "order" of kisses is concerned. Microbes, however pathogenic, will be ignored under these circumstances, and such will be the case until time is no more.

With respect, however, to the second variety of kisses, the matter is different. For the most part the habit is practised upon children, both girls and boys. Among themselves, too, kissing to a large extent prevails. But the facility with which diphtheria, measles, whooping-cough, and scarlet fever are transmitted in early life renders the habit one which common sense will show to be open to grave objections.

However essential conventional kisses may be regarded as a means of demonstrating friendship and politeness, parents should nevertheless, we think, consider in this matter the welfare of their

children first. Our condemnation of kisses may, for practical purposes, be restricted to the objectionable but common practice of kissing on the mouth. Among grown-up people it is unbecoming, to say the least, while towards and between children the practice is open to the gravest suspicion.

Children can be trained with the greatest ease to offer the cheek or the forehead for the proffered caress, and to elude the attempt to contaminate the lips. The incubation period of all the diseases mentioned may or may not be infective in the ordinary acceptation of the term. Upon this matter our knowledge so far is by no means certain, while, on the other hand, recent investigations would seem to indicate that the infection of zymotic diseases in patients is of very much longer duration than used formerly to be supposed, enduring, indeed, long after convalescence has been established.—*Medical Press and Circular*.

The Proper Disposal of Sewage.

Dr. C. W. Chancellor, late secretary of the Maryland State Board of Health, and now United States Consul at Havre, thus concludes a paper in *The Sanitarian* for May :

(1) That the proper disposal of sewage involves the beneficial appropriation of refuse matters, so as to make them actually productive, avoiding interference with the domestic uses of inland waters for which they are properly adapted.

(2) That sewage matters should be made available for agricultural purposes, and the results in this respect are limitable only by considerations of expense as weighed against the value of the result.

(3) That there exists between the air of water-carriage sewers and the external atmosphere a constant interchange, and as is the air of the sewer so will be the air of the street.

(4) That excremental matters and other household sewage ought to be rigidly excluded from all storm-water sewers.

(5) That all unhealthy putrescible matters should be removed at short intervals from centres of population by means of pipes practically air-tight.

(6) That in every respect the best results in the ultimate disposal of sewage have been obtained by irrigation, when the sewage matter is not diluted by flushing or storm-water.

Mortality from the Ten Chief Preventable Diseases in New Jersey.

	Year ending June 30, 1893.	Year ending June 30, 1894.
Consumption	3,429	3,433
Diarrhoeal diseases of children . . .	3,981	3,893
Diphtheria and croup	1,677	1,294
Enteric fever	506	485
Scarlet fever	445	272
Whooping-cough	237	328
Erysipelas	74	97
Measles	73	257
Small-pox	43	11
Malarial fever	148	162
Total	10,613	10,232

If in every sanitary district in the State the local health authorities had faithfully applied the well-established methods (isolation, disinfection, and vaccination) for preventing the spread of the diseases named in the foregoing table, at least 50 per cent., or more than 5000 human lives, could have been saved.

The hearty co-operation of the relatives, friends, and attendants, in cases of preventable disease, to restrict it as far as possible, would still further diminish the death-rate from these pestilences.
—*New Jersey Public Health Bulletin.*

The Use and Abuse of Toothpicks.

The exciting causes of caries of the teeth are invariably external, and among these decomposition of food or of mucus between the teeth holds a prominent place. It follows that removal of such matter must be beneficial. One of the means of accomplishing this is the toothpick, which, judiciously used, is of undoubted value. Food lodges between the teeth from a variety of causes: the extraction of a tooth may lead to those contiguous falling apart and so leaving spaces; improperly filled teeth, such as those left with rough edges and not sufficiently "contoured,"—that is, built up to the original configuration of the lost part,—will form food traps; irregular position of the teeth or recession of the gums,—all these will act in the same way. Attention to the dental toilette before company is certainly inelegant, but it is not necessary here to approach the subject except from a medical point of view. Of the materials used as toothpicks the best is the

quill with the sharp point removed, but with this, as with all other forms, care must be observed. By indiscriminate application the gums may be so irritated and injured as to cause recession and thus increase the exciting trouble, or inflammation of the tooth membrane may be caused, a most annoying condition, and one in which the still more vigorous use of the toothpick gives temporary relief, only in reality to add fuel to the fire. Metal toothpicks are good because blunt-pointed, but are too thick to pass between teeth at all close together. Wood need only be mentioned to be condemned, for it is a by no means uncommon occurrence for small fibres to become detached, and jammed between the socket and tooth, leading to chronic periostitis and even loss of the tooth if the condition is not recognized. An excellent substitute for the toothpick, one having few objections and one which will save many a visit to the dental surgeon, is antiseptic, waxed, dental floss silk, which, passed between the teeth night and morning, will invariably reveal accumulations which have escaped the tooth-brush.—*London Lancet*.

Hygienic Morality.

There has been a boom in gymnasiums lately (says Julian Hawthorne), but those who need them most are often the very ones who least profit by them. School and college boys like the fun of pulling weights and swinging clubs; but they are sure to get exercise enough in any case. But a vast number of home-keeping people, male and female, have neither time nor opportunity to see the inside of a gymnasium; and, since they cannot exercise scientifically, imagine there is no good attempting to exercise at all. I hope to show that such people make a great mistake.

You can improve your physical health and strength several hundred per cent. without ever touching a club or a dumb-bell, or pulling a weight. In fact, gymnasiums often do harm, for two reasons: first, because of the confined air; and, secondly, because those who attend them do not know what sort of work is best suited to them, and are apt to overdo the work they undertake, thereby distorting themselves and sapping their vitality, an ounce of which is worth a ton of "muscle" in the long run. Too much muscle will shorten your life; but vitality is life itself.

The stomach, the skin, and the lungs are the three essential

things in a human being. So long as they are in perfect order, the finest professional gymnast can have little to teach you. To keep them in good condition, no gymnasium or gymnastic apparatus is required ; still less any pepsine pills or sarsaparilla. You can do it all yourself, without altering your business or domestic habits, or putting yourself to any inconvenience. Quite the contrary. But it is extraordinary the ingenuity some people show when the choice is offered them between two things or courses, one healthy, the other unhealthy, but both equally available or easy,—the diabolical certainty, I say, with which they fix upon that which is unhealthy. Whatever the metaphysical morals of the bulk of man and womankind may be, their physical morality often seems not far removed from total depravity.

Take the stomach first. How many of our average citizens can lay their hands upon that noble organ and swear that a week (I might well say a day) passes in which they do not overload it with pie, pickles, and candy ? And how many gallons of strong—even green—tea and hot coffee per annum do they drench themselves with ? As to mastication, regularity of meals, respect for the digestive processes, and so forth, I say nothing. After we have ceased to stuff ourselves with trash that has no more nourishment in it than sawdust, and is actively injurious into the bargain, we may consider these more elevated subjects. We hear of crusades against alcohol ; but I have no sympathy with a pie- and candy-eating and tea- and coffee-drinking man or woman, who preaches temperance or abstinence ; let them first take the beam out of their own eye. A small quantity of alcohol administered at the right time may do good ; pie and candy and green tea never can. Abstain from such stuff entirely ; never drink anything hotter than blood-heat. Let your only condiments be salt and mustard, in moderation ; eat butter sparingly, and cheese not at all ; for breakfast and supper have bread and milk, oatmeal, and eggs ; for dinner, fresh meat and vegetables, between half a pint of soup and a couple of spoonfuls of light pudding. As to drink, if you are thirsty, you can drink water ; if the water is bad take mineral water, with an occasional glass of pure ale or claret. Every five or ten minutes stop and ask yourself whether you have not had enough ; and if you think you can get along with what you have eaten, do not take another mouthful. Never try to “tempt” your appetite ; on the contrary, ask yourself whether you could, if necessary, make your meal on pure bread and water ; and if the

answer is in the negative, omit that meal and see how you feel at the next,—but never eat between meals. If you ate only wholesome things, you could live and thrive on half the present bulk of your food. Starvation is the best cure for dyspepsia ; pick-me-ups only keep it alive. After you have lived on reasonable food for a month or two, you will no longer be troubled with squeamish appetite. If any way practicable, you ought to have at least half an hour in the open air before sitting down to table ; and at any rate wash your face and arms and chest in cool water. But I must leave the stomach here, with a hundred things still to be said about it.

Now for the skin. Ninety-nine people out of a hundred never think about their skin, though the health of all their internal organs depends upon its condition. It is no use washing your face and hands and leaving the rest of your body untouched. It is little better to stand in front of a basin and spatter yourself from head to foot with water. You must cleanse every part of your skin thoroughly once a day. I am no advocate of discomfort in bathing,—cold water in a cold room, and all such nonsense. Have the room warm, and the water only a few degrees cooler. Stay in the bath five minutes, keeping yourself either under water or pouring wet all the time. But it is after you leave the tub that the really important part of the bath begins. Dry yourself thoroughly with two towels ; then take a stiff flesh-brush, and try with all your might to rub your skin off. A cocoanut-fibre brush is the best ; and to get at your back it is a good plan to have a cocoanut-fibre mat hung against the wall to rub yourself against. Keep up this friction for at least ten minutes. You could not invest the same amount of time more usefully. There is no such remedy for a feverish habit as this, nothing like it to relieve the internal organs from undue heat and congestion of blood, and to free the lungs from oppression. Moreover, it actually increases the size of the muscles, and makes them firmer, by causing the blood to circulate more vigorously in them. As to its effect upon the elasticity and beauty of the skin itself that will be obvious enough at a glance. It is the brush, not the toilet bottle, that furnishes the only true Bloom of Youth. But the morning bath and rub-down alone are not sufficient. If, during the day, you get into a perspiration, do not allow the moisture to dry on your skin. Never come in from a walk or a horseback ride or a row and sit down as you are. Go to your room, take off everything, and use the brush. It may seem inconvenient at first, but when

it is done you will rejoice, and soon it will become a matter of course to you. If your underclothing is damp, it is, of course, best to change it; but if the skin has been brushed red, you may venture to resume the same clothes with comparative impunity. This friction after exercise is of great importance; so much so, that it may be affirmed that three-fourths of the benefit of any exercise is lost without it. If you foresee that it will be impossible after your exercise to take a rub-down, then it will often be better to choose the rub-down instead of the exercise.

Once a week—say on Sunday, when you have more time—you should take a bath of a more elaborate kind. Fill the tub with water as hot as you can bear it. Get in and stay there until you feel almost uncomfortably warm. Then stand up and take a big sponge or a pitcherful of cold water, and deluge yourself again and again from head to foot. This is delicious; there are few things that give so keen a sense of physical wholesomeness and vigor. Dry and rub down as usual, and you will imagine yourself ten years younger. The stimulus to the circulation is enormous. It is one of the best preventives against catching cold. It is an excellent substitute for the Turkish or hot air bath, and takes only a quarter of the time. If you feel a headache coming on, it will often send it away. But be sure to have the hot water very hot, and apply the cold without stint.

As regards the lungs, the more fresh out-door air you can get into them, the happier and more comfortable you will be. But it is not enough to go out in the open air; you must learn how to breathe when you get there. Most people let year after year go by without once drawing a full breath. A quantity of impure air always remains at the bottom of their lungs, like bilge-water in a ship; and it contaminates the whole system. If you will breathe properly, you may get more benefit from half an hour in your back-yard than another person will from a twelve hours' dawdle at the sea-side. It is a very simple matter: breathe slowly, and breathe in as much air as you can possibly get into your lungs. When they will hold no more, then emit your breath as deliberately as you took it in. Suppose you are walking at your usual pace along the street: draw in your breath while you are taking seven steps; emit it while you are taking the next seven, and so on. It will make you feel queer at first; but keep it up! After practising this every time you go out, for a week or two, you will be able to breathe in while you are taking eight or nine steps; and later on, even more. Then note the effects. After walking

for quarter of an hour, at a leisurely pace, on a winter's day, you will find yourself warm enough to do without an overcoat. In half an hour you will be in a glow down to the tips of your fingers; in an hour, you will feel as if your whole body had been vigorously exercised. And so it has. Take the measurement of your chest after a year of such practice, and you will find it has increased in girth a matter of three inches. And your eyes will be brighter, your skin fresher, your stomach stronger, your muscles firmer,—because you will have thoroughly aerated and oxygenized your blood. And you will have acquired the habit not only of breathing slowly and deeply while you are out walking or exercising, but of breathing in that manner all the time. And if you are called upon suddenly to escape over a ploughed field from a mad bull, you will find yourself able to do so without losing your breath,—which might, in such a case, be tantamount to losing your life as well. I need scarcely say that all the breathing must be done through the nose, with the mouth shut. That comes hard at first; but it is worth while taking a great deal of pains about.

Observe these rules for a year, and you will be twice the man or woman that you are now; and then you may begin to think about gymnastics.—*The Medical Tribune.*

New Jersey Laboratory of Hygiene.

The Trustees of the College of New Jersey have authorized the erection and equipment of a laboratory of hygiene. By an arrangement with the Board of Health of the State of New Jersey, the facilities which this department of the college will afford for bacteriological diagnosis can be made available to local boards of health and to practitioners of medicine throughout the State.

The advantages which will be placed within the reach of the citizens of New Jersey by such an establishment can hardly be over-estimated. Diphtheria is most often spread by persons who are not known to be carriers of the Lœffler bacillus, and medical men are to-day in accord in the opinion that true diphtheria and some of the milder affections of the throat cannot be positively distinguished in the earlier stages, except by the aid of bacteriological methods.

If every physician could have the ready assistance of a competent bacteriologist in making diagnoses in doubtful cases, he

would, as a routine precaution, isolate cases of sore throat which at all resemble diphtheria and await a report from the laboratory. Such a course would undoubtedly result in saving a large number of lives annually. It is estimated that in New Jersey not less than 900 persons, or about two-thirds of those who die from this disease, might be saved. In cases of incipient consumption, early diagnosis, which can only be made with certainty by the help of the laboratory, would greatly conduce to the lowering of the death-rate.

In several States the diagnosis of germ-diseases is conducted gratuitously under governmental direction, and the good results already attained give promise that, with wider applications of the methods of this department of knowledge, comparative immunity from these hitherto intractable diseases will be secured.—*New Jersey Public Health Bulletin*.

Penalties of Ignorance.

Since Pasteur in the course of his chemical researches dragged the long-hidden cause of disease into light, and opened our eyes to a hitherto unsuspected law of nature, we can no more get rid of the newly revealed facts than we can stop the rotation of the earth. And yet this knowledge, so important in house-keeping, so useful to those who are responsible for the health of others, and which so closely concerns us all, forms no part in the general education of the people. The precious key has been given to us, but, so far as domestic life is concerned, the gates of knowledge remain closed. Now, if the poor man understood the *raison d'être* of the antiseptic dressing of his wounds, and the rich man knew the beautiful part nature takes in providing him with the clear and sparkling ale and wine on his table, then would they severally know that the matter of life or death, success or failure, in many things depends on our realization of that world of busy living organisms which we cannot see. But, as things are at present, we accept our blessings as we accept our pains and penalties, in profound ignorance of why and whence they come; and until we fully recognize this "third realm" and understand its direct and indirect influence on our health and the healthiness of the perishable things round about us, we are bound to suffer the consequences of ignorance and waste.—*Nineteenth Century for April*.

The Bucket System in Prisons.

A recent inspection of the Hudson County Penitentiary has again drawn attention to the advantages of a well-conducted bucket system for use in the cells of prisons. In the Snake Hill institution many of the cells have been fitted up with water-closets, yet in one wing of the prison buckets are still used. After an experience of many years, and the employment of buckets of various sizes, shapes, and material, brass kettles have finally been adopted by the warden as the most suitable receptacles for the purpose. Each kettle has a capacity of about two gallons, and is provided with a brass cover. As the prisoners march to their cells at night, each one picks up a clean kettle and places it in his cell. In the morning, when the cells are first unlocked, each prisoner takes his kettle and marches with his squad to the river, where the kettles are emptied. The kettles are then carried to the cleaning-house, where two or three prisoners are constantly employed in washing and scouring the kettles and covers. When the cleaning process is finished, the kettles are odorless, and they shine like mirrors.

Compare this system with the plan in operation in the New Jersey State Prison, in Trenton. In the old wing of the State Prison, a line of sewer-pipe runs beneath each tier of cells and in each cell is placed a hopper-closet, with no trap and without any flushing device. A rude wooden cork or plug is used by the prisoners to keep out the sewer-gas. Water is brought in pails to flush the hoppers after use.

But even when a properly constructed and well flushed hopper water-closet is placed in a small unventilated room, it is sure to give offence, as every experienced person knows, and plumbing ordinances generally require that every apartment containing a water-closet shall have a window opening to the outer air, or a ventilating shaft. No matter how well constructed a water-closet may be, it will create a nuisance if it is placed in a prison cell.

The same may be said of all drainage fixtures, and neither washbowls nor sinks should be placed in cells. There should be no drain-pipe nor water-service pipe either in or near to any such cell.

Have no water in the cells except drinking water, but provide a wash-room in a suitable location, and for use during the daytime, supply water-closets in an annex, if possible.—*New Jersey Public Health Bulletin.*



On the highways and byways of this great land
The cyclers are everywhere seen,
And each one will wager when brought to a stand
That he rides the finest machine.
But for beautiful strength and symmetrical grace
Hark! how the loud praises ring
Over hills, through the valleys, as onward they race—
The MONARCH!—the MONARCH is KING.

Manufactured by the

MONARCH CYCLE CO., *Chicago, Ill.*

Kola.

Messrs. Johnson & Johnson inform us that two very large editions of their monograph on the above-named drug have been exhausted, and they have issued a third volume much handsomer in make-up and illustrations than anything heretofore published. It contains a very interesting chapter on West India Kola from which they make up their preparations.

The physiological action of Kola is very fully and clearly explained, together with reports of experiments showing the action of Kola in aiding endurance in hard labor, mountain climbing, bicycle riding, and a very interesting article on the influence of Kola in athletic training. Any of our readers sending their address to Johnson & Johnson, New York, will receive a copy of this work.

Cactina Pillets Sustaining the Heart during Gestation.

CACTINA PILLETS have been highly spoken of recently in sustaining the heart and improving fetal circulation during gestation. Dr. A. H. Ohmen-Dumesnil has written an extensive article on the subject.

SULTAN DRUG CO., *St. Louis, Mo.*



COMMUNICATIONS.

The Tenement-House Problem in Philadelphia.¹

BY WILLIAM H. FORD, M.D.,

President of the Board of Health.

PHILADELPHIA, by her unexampled advantages for domiciling her population in small, comfortable houses, is justly entitled to the reputation of the "City of Homes." No other great city in the world can lay claim to this proud distinction. And upon this peculiar feature depends largely another distinguishing characteristic,—namely, her pre-eminence as one of the healthiest of the world's great cities.

It is plain to be seen that a people who are well housed are more likely to be healthy than a people living under the reverse condition, and that home comforts and health on the one hand, and thrift and prosperity on the other, are mutually dependent,—the one reacting upon the other.

In view of the manifold advantages—physical, social, and moral—which result from the separate house system that has given Philadelphia enviable prominence, it behooves us to look with distrustfulness and even anxiety upon the tendency which has of late evinced itself to ingraft the tenement-house system upon our city institutions. It is only necessary to visit localities where the poorer classes of the population collect, to notice the activity displayed in tenement-house construction and in remodelling old

¹ An address delivered before the Woman's Union in the Interest of Labor, Philadelphia, January 19, 1895.

buildings for occupancy by the laboring class, especially those of foreign birth. And the most significant fact in this connection is the manifestation of an utter disregard in the erection of these buildings of the requirements of sanitary law and public health. Some of the worst features of the "multiple tenement" are illustrated in these recent constructions, such, for example, as deficient free area, deficient ventilation, absence of light, basement, and cellar occupation, inadequate provision of water-closets, deficient fire-escapes, inadequate provision of proper stairways and passageways, inadequate means of disposal of house-refuse, and mismanagement and neglect of the property.

It may be pertinently asked, Why has such a condition of affairs been permitted to take root, and what necessity exists for the crowding together of the people in "multiple tenements"? In the first place, it may be stated that there are, practically speaking, no laws regulating the construction and management of tenement- and lodging-houses. There are, of course, laws defining the amount of open space to be reserved on each lot, the minimum width of street, and the general nuisance law, which remedies defects but does not prevent them. But a sanitary code regulating the construction and management of these houses under a permit and giving authority to condemn and vacate upon violation of prescribed conditions,—none such exist. The reason is apparent. There has been comparatively little demand for tenement-houses in this city, and the demand regulates the supply. The wide area of the city, the abundance and cheapness of land, and the large provision of single domiciles, and the popularity of small homes have hitherto stood in the way of profitable tenement-houses. The existence of laws presumes something to be regulated, and the absence of laws indicates so limited and insignificant a development of the evil we are considering as not to have concentrated the attention of the public upon it.

But a marked change has taken place within the past few years, due mainly to the influx of a special class of foreign labor, which, for various reasons, has located in the southeastern section of the city, a district already densely populated by a large foreign population, mostly of the laboring class. Their employment depends on cheap labor, and cheap labor demands cheap accommodations. The speculator has not been slow to see that profits were to be made by meeting this demand, and consequently old buildings have been converted into barracks by dividing their

space into smaller proportions capable of containing the greatest number within four walls, and an impetus has been given to new construction utterly at variance with proper sanitary conditions and principles. Unfortunately, "the plans and construction and management of these buildings have been left almost exclusively to the caprice and inordinate selfishness of men whose sole object has been to make small investments and a borrowed capital pay enormous advances without regard to the poor tenants' welfare or the public safety." There is a strong tendency for nationalities to segregate, and, accordingly, there exist to-day, in the lower section of the city, distinct settlements, such as the Italian quarter, the Russian Jew quarter, etc., in which are manifested the peculiar characteristics and mode of living that prevail in the parent countries. The special district they have selected is already densely populated, and as they are averse to dispersion or to migration to the outer sections of the city, where humble but comfortable homes are numerous, the demand for concentration increases. This demand is now being met by the construction of large tenements.

It is needless to dilate upon the evils of a vicious tenement-house system. New York has been suffering from the effects of this curse for more than thirty years. Her high death-rate is largely attributed to conditions inseparably connected with this social incubus. Whilst the conditions in Philadelphia are such as to make it impossible for this evil to even slightly approach that which has been predominant in New York City, there is a positive certainty that, unless determined, persistent, aggressive, and intelligent opposition to the establishment of the tenement-house system is at once instituted, or, at least, unless the rigid sanitary regulation of such establishments is insisted upon, this canker, now implanted upon the social and physical growth of the community, will, in time, spread its baneful influences with most disastrous results to the health and prosperity of the population.

What, then, is the duty of the sanitary authorities and of worthy and philanthropic citizens in the present emergency? To grapple with the evil in its very incipiency. The Council of Hygiene and Public Health, organized many years ago by the Citizens' Association of New York for the purpose of improving the sanitary condition of the city, recommended, in view of the evils of the tenant-house system, which had become unbearable, the following :

(1) That capitalists, architects, and builders should unite in devising and executing the construction of improved dwellings for the industrial classes in the city.

(2) That effective measures be immediately taken to procure the introduction of needed improvements in the ventilation, light, and cleanliness of the tenant-houses of the city.

(3) That citizens should put forth the requisite efforts to procure the enactment and execution of suitable sanitary laws for the better regulation of tenant-houses, and to enforce the necessary care and cleanliness of the same by the owners, lessees, and occupants.

(4) That a Department of Social Statistics and Dwelling Improvement be maintained in connection with the plan of labors pursued by the Council of Hygiene, . . . for the purpose of acquiring and imparting needed information relating to the social statistics and improvements in dwellings which sanitary science and the public welfare require, and which will best conduce to the immediate development and execution of successful plans and examples of the dwelling improvements which are demanded for the physical and social welfare of the industrial classes.

Some such movement as thus advised should be inaugurated in this city. As bearing upon this particular point, I wish to refer to the action of the Board of Health of January 16, 1895. It is as follows :

"WHEREAS, Philadelphia, by its unparalleled advantages for domiciling its population in comfortable, small houses, is justly entitled to the reputation of the 'City of Homes;' and

"WHEREAS, It is the duty of the authorities, who represent the people, to strenuously resist any attempts to nullify, in any part, the advantages of the prevailing system by constructing ill-planned and badly-adapted 'multiple domiciles' or tenements for housing the needy and laboring classes, thus subjecting them to the evils of overcrowding, lack of ventilation and light, lack of privacy and domesticity, and imminent risk from fire and the propagation of disease; and

"WHEREAS, The comparative freedom of the city from such domiciles, as is indicated by the absence of laws regulating the tenement-house system, has diverted attention from this problem, so that advantage has been taken of the absence of laws regulating tenement- and lodging-houses by individuals bent solely upon their own gain, and the consequence is that within comparatively recent years a commencement has been made in the construction of viciously-planned tenement-houses, which, if not immediately counteracted, will lead to most disastrous results. Therefore, be it

"Resolved, That for the public good the construction of 'multiple

domiciles,' such as are being and have been built, be discouraged, and such only be permitted as embrace the essential requirements and conditions of domestic hygiene and public health; and to this end proper laws be supported by the Board of Health, and their endorsement solicited of all philanthropic citizens of Philadelphia.

"*Resolved*, That the Director of Public Safety be requested to formulate into an act the principles of construction and management of tenement-houses under the advice of those who have made the tenement-house problem a special study."

Conferences are now being held for the purpose of formulating a law covering this weighty subject, and suggestions of co-operative societies like your own, which are deeply interested in this reform work, mainly for the benefit of the laboring classes and indirectly of the whole population, will doubtless be thankfully received and highly appreciated. Such a law must and will have the earnest and cordial support of kindred associations and philanthropic citizens.

Let us briefly refer to some of the salient principles to be embodied in such a law.

As a preliminary, it is necessary to clearly understand what is meant by the terms "tenement-house," "lodging-house," etc. According to the Tenant-House Laws of New York "a *tenement-house* shall be taken to mean and include every house, building, or portion thereof which is rented, leased, let, or hired out to be occupied, or is occupied as the house, home, or residence of three or more families living independently of one another, and doing their cooking upon the premises, or by more than two families upon a floor so living and cooking, but having a common right in the halls, stairways, yards, water-closets, or privies, or some of them. A *lodging-house* shall be taken to mean and include any house or building or portion thereof, in which persons are harbored or received or lodged for hire for a single night or for less than one week at a time, or any part of which is let for any person to sleep in for any term less than a week. A *cellar* shall be taken to mean and include every basement and lower story of any building or house of which one-half or more of the height from the floor to the ceiling is below the level of the adjoining street. The phrase "boarding-house" shall be held to include every building and every story or part thereof which is at any time or usually used, leased, or occupied, or intended so to be, by any number of persons exceeding ten as boarders thereat."

It is essential that the law provide for proper construction

and adaptation for healthful occupancy and for proper management after occupation. The physical construction of tenement-houses is adequately supervised under the present building laws. But one special feature, however, should be insisted upon,—namely, that all structures of this class above three stories in height should be made fire-proof, at least above the first story.

In planning a tenement-house the provisions for adequate light and ventilation are foremost considerations. Every room should be lighted and ventilated by free communication with the external air by movable windows. The halls and passage-ways and the stairways should likewise be lighted and ventilated, as also the water-closets. This will necessitate the provision in the plan of a court-yard or open space proportional to the size of the lot built upon. The more recent regulation of the New York Board of Health on this feature has much to recommend it. It reads thus :

“Any plan for light and ventilation of a tenement-house with apartments on five or more floors, and having more than twelve rooms on a floor, to be erected on an ordinary city lot, except a corner lot, will not be approved by the Board of Health where more than 65 per cent. of the lot is to be covered, unless the courts to light and ventilate the interior rooms thereof shall have an area of at least 265 square feet, and where there are to be twelve rooms on a floor, the area of such courts must not be less than 215 square feet.”

An admirable plan is one in which provision is made for a yard in the rear, of the full width and not less than ten feet in depth, and an open court on one or either side of the inner rooms (according to the width of the lot). This will provide light and ventilation for every room in the building. Ventilating shafts would thus be done away with, as free access to fresh air would be secured without them.

Every habitable room should be, in every part, not less than eight feet in height from floor to ceiling, and every window should have an opening of not less than twelve square feet in superficial area, admitting light and air direct from the public street or court-yard. Open fireplaces are advantageous for ventilating purposes, but as they are not economical, this provision cannot be insisted upon.

The stairways and passage-ways should be ample in width,—say, not less than four feet, and constructed at the sides of imperious material, and lighted and ventilated throughout by means

of windows opening to the external air, and lighted at night by gas. Louvered skylights above the stairways afford an excellent means of ventilation. Stairways should be provided at the rear and front, and also intermediate when the rooms on a floor exceed twelve in number. The provision made for fire-escapes is ample under existing laws.

No hydrant should be permitted in the yard, for the reason that it creates dampness, and in winter obstruction and a nuisance by the water freezing on the surface and in the passage-ways. Moreover, its cess-pool is apt to be used as a common depository for house-slops and liquid waste from the whole household. In lieu thereof, water should be supplied to each apartment in connection with suitable kitchen-sinks and wash-tubs, the plumbing arrangements being amply guaranteed by the present excellent plumbing laws.

Another most important feature is the location and construction of water-closets. The water-closet compartments should be located at suitable and convenient places, as far removed as possible from the living rooms, preferably in the rear of the building. The closets should communicate by windows with the open air. Foul-air ducts are necessary, especially in the winter season, and their external openings should be at the top of the house above the roof. Every two families should be provided with a water-closet on the same floor, and there should be no water-closet in the court-yard, where it is generally set apart for common use, and which becomes exceedingly filthy and vitiates the air of the neighboring apartments.

The cellars should be provided with windows opening to the outer air, and the floors should be concreted throughout. No cellar should be permitted to be inhabited, and cleanliness should be insisted upon as an absolute requirement.

No chutes for ashes, rubbish, or garbage should be permitted, for obvious reasons. The dust they create and the nuisance in the cellar they cause and the foul air they permit, when open, to permeate the hall-ways, are sufficient objections to this plan. Proper conveniences and receptacles for ashes, rubbish, and garbage, in specially-constructed compartments, preferably in the court, but cut off from it by a ventilating-shaft rising above the house, must be supplied and placed under rigid supervision.

The management of tenement-houses is no less important than their construction, since it is often in this particular that the

best devised plan utterly fails in its object. A strict sanitary code must regulate specifically this important branch of government. Overcrowding must be prevented by adjusting the inhabitants to the air-space. At least 600 cubic feet of air should be allowed to each adult occupant of such building or room, and 300 cubic feet to each child. Much depends on the manner in which the room is ventilated. When, therefore, overcrowding is practised, the inspector should have authority to order the number of occupants reduced until the number of inmates shall not exceed the limits prescribed according to the requisite air-space.

Thorough cleanliness must be maintained in every part of every tenement-house, and the owner or keeper thereof must be held liable to a penalty for non-compliance and the cost of amending the defects.

The supervision of the building and the maintenance of cleanliness and order must be intrusted to a responsible person; to the owner if he lives in the house; otherwise, to a janitor or house-keeper. This, however, may be left to the owner, who should be held strictly responsible for the maintenance of sanitary discipline under severe penalties for breach of its requirements. It is most essential that no tenement-house be permitted to be constructed without a permit, the granting of which shall be based upon the approval of a filed plan and description. And further, no existing tenement-house should be permitted to continue its uses after a fixed time without a permit of approval based upon a compliance with plans of reconstruction and remodelling in conformity with definite specifications of such reconstructed tenements.

The power to vacate premises unfit for human habitation should be vested in the Board of Health, as a means of promptly meeting urgent needs and of compelling readjustment according to statutory regulations. Some such requirement as the following would prove most salutary:

“Whenever it shall be certified to the Board of Health that any building or part thereof is infected with contagious or infectious disease, or has become dangerous to life by want of repairs, or unfit for human habitation because of defects in drainage, plumbing, ventilation, or because of the existence of nuisances on the premises liable to cause sickness among the occupants, the Board of Health may issue an order requiring all persons therein to vacate such building or any part thereof for any of the reasons aforesaid. And after due notice thereof shall have been given, said building or any part thereof shall be vacated until such time when the said Board of Health shall be satisfied that the danger to the public health from any of the

causes herein stated has ceased to exist, and that the said building is, in their judgment, fit for habitation."

Too much stress cannot be laid upon this wise provision. It is, in fact, a power without which the enforcement of the orders of the Board of Health in regard to tenement-houses is almost sure to fail.

Free baths should be provided in the vicinity of every tenement-house, if not accessible in the building itself. Frequent bathing is so essential to health that it would not be amiss to require a public bath-room on every floor of every tenement-house.

I have thus hastily and most imperfectly outlined some of the principal requirements of tenement-house construction and management. The subject is worthy of the deepest study. It is a humanitarian question teeming with interest and capable of active treatment at the hands of the sanitary authorities and philanthropists.

Much can be accomplished by the persistent efforts of the sanitary authorities working under wise and efficient laws and regulations; but still more can be effected by the co-operation with them of philanthropic and charitable organizations and individuals by "visiting, imparting instruction, and teaching the ignorant how to live and how to avail themselves of a better means of good, domiciliary sanitation." There is a wide field open "for the missionary and for the kindly offices of good women as educators of children in the duties of life," which yields abundantly in proportion as the effort has been bestowed.

The present is an opportune time for active and persistent effort for bettering the condition of the laboring classes through the instrumentality of improved homes of the collective type. Let us seize the opportunity while it is an opportunity, and by united effort stifle at the very start the attempt to install a pernicious practice of reckless tenement-house construction by substituting therefor, with mandatory effect, a carefully-designed and health-protective system of construction and management in behalf of the improvident, ignorant, and laboring classes of the community, not only for their own sakes, but for the sake of the whole people.

Shall Anything be done by Legal Authority to Prevent the Spread of Tuberculosis?¹

BY FREDERICK I. KNIGHT, M.D.,
Boston, Massachusetts.

IT is now twelve years since the infectious nature of tuberculosis, at various times before suspected or believed, was put beyond question, and yet very little has been done in this country to prevent its spread. Physicians recently graduated, and a few older ones who have kept themselves informed of the progress in medicine, have enjoined care in the disposal of the sputa, and recently a few have had bulletins of information printed for the use of the sick, or those exposed to them, or both, notably the Pennsylvania Society for the Prevention of Tuberculosis, and Dr. De Lancey Rochester, of Buffalo, New York. In 1889 the Board of Health of New York City issued circulars, which were widely distributed, setting forth the communicability of tuberculosis and measures for its prevention. In 1893 the American Public Health Association and the Public Health section of the Pan-American Medical Congress adopted resolutions in favor of the reporting and registration of all cases of tuberculosis. In September of last year the State Board of Health of Michigan resolved that "hereafter, consumption (and other diseases due to the bacillus tuberculosis) shall be included in the official list of 'Diseases dangerous to the public health,' requiring notice by householders and physicians to the local health officer as soon as such a disease is recognized." "The purpose of this resolution," as explained by the secretary of the board, "is to secure the local health authorities and to the State board of health information of the location of each case of well-developed consumption; with the view of placing in the hands of the patient reliable information how to avoid reinfecting himself or herself, and how to avoid giving the disease to others; with the view of placing in the hands of the patient's family, or others most endangered, information how to avoid contracting consumption; also with the view of instructing superintendents of public buildings how best

¹ Read at the meeting of the American Climatological Association at Washington. From the International Medical Magazine.

to restrict the spread of the disease." In February of this year the Board of Health of New York City took similar action, but the regulation is not quite so stringent. The circular declares that "the [health] department will hereafter register the name, address, sex, and age of every person suffering from tuberculosis in this city, so far as such information can be obtained, and respectfully requests that hereafter all physicians forward such information on the postal cards ordinarily employed for reporting cases of contagious disease. This information will be solely for the use of the department, nor will the department assume any sanitary surveillance of such patients, unless the patient resides in a tenement-house, boarding-house, or hotel, or unless the attending physician requests that an inspection of the premises be made; and in no case where the person resides in a tenement-house, boarding-house, or hotel will any action be taken if the physician requests that no visits be made by inspectors, and is willing himself to deliver circulars of information, or furnish such equivalent information as is required to prevent the communication of the disease to others." The resolution provides for the official visitation of tenement-houses, boarding-houses, and hotels where cases of tuberculosis are known to exist, unless the attending physician has assumed the responsibility as above stated. In all cases where it comes to the knowledge of the department that premises which have been occupied by a consumptive have been vacated by death or removal, an inspector will visit the premises and direct proper disinfection. Rugs, carpets, bedding, etc., are sent away and disinfected without charge. No other persons than those residing there at the time will be allowed to occupy the premises till the order of the board has been complied with. The order also provides for free bacteriological examinations, and that all cases in public institutions shall be reported.

The College of Physicians in Philadelphia held a special meeting in January of this year to consider the proposed act of the board of health of that city in reference to the registration of tuberculosis. After a long discussion, participated in by a number of the prominent members of the College, the resolution of Dr. Flick, looking to the registration and disinfection of houses which have been infected by tuberculosis, and recommending the establishment of a municipal hospital for the treatment of the disease, was rejected, and the following resolutions offered by the council of the College were passed :

“Resolved, That the College of Physicians believes that the attempt to register consumptives and to treat them as the subjects of contagious disease would be adding hardships to the lives of these unfortunates, stamping them as the outcasts of society. In view of the chronic character of the malady, it could not lead to any measures of real value not otherwise attainable.

“That strict attention on the part of physicians in charge of the individual cases, insisting on the disinfection of the sputum and of the rooms, on adequate ventilation, and on the separation of the sick from the well as far as possible, will meet the requirements of the situation so far as they practically can be met, and better than any rules that, for diseases so chronic, can be carried out by a board of health.

“That the College of Physicians respectfully requests that no official action be taken in the matter by the board of health, except the insisting on the disinfection of rooms in which consumptives have lived and died, in instances in which such procedure is not likely to have been adopted under the direction of the attending physician.”

During the past winter a committee was appointed by the chairman of the Section on Clinical Medicine, Pathology, and Hygiene, of the Massachusetts Medical Society, of which committee I had the honor to be chairman, to consider what means could be adopted to prevent the spread of tuberculosis in our State. The members of this committee felt that it would be unwise to attempt too much at first, but that the time had certainly come for some kind of an entering-wedge, which could be driven deeper as circumstances and the temper of the people seemed to warrant or demand. So we decided to respectfully request the State board of health to consider the propriety of issuing a circular declaring the infectious nature of the disease, that the chief danger was from the sputum, and how to take care of this, copies of this circular to be distributed in large numbers to the physicians of the State, and by them placed in the hands of every family where a case of tuberculosis was known to exist. The committee also took the opportunity of expressing their opinion of the desirability of isolating tuberculous patients in hospitals, and the ultimate erection of special hospitals for them. The board of health acceded very willingly to the wishes of the committee, and have issued a bulletin setting forth the prevalence of the disease, its nature and mode of prevention, and also a small

leaflet of information, which they suggest local boards of health to issue for the use of the patient and his family.

This is about all that has been done. How can this apparent indifference to the most fatal disease in the world be accounted for? Is it that there lingers any doubt about the infectiousness of the disease? I think not on the part of any one who has looked at the evidence of it. Though every one might not admit that every case came from a previous case, he would not in the face of the evidence deny such a possibility. It is hard, in the wide-spread prevalence of the disease, to get convincing clinical substantiation of what has been so abundantly proved experimentally. The experience of the nurses at Brompton Hospital is quoted over and over again to prove that the attendants of consumptives have no special liability to contract the disease. The statistics are certainly remarkable, but equally so on the other side are the statistics of Cornet, who examined the records of thirty-eight nursing societies for twenty-five years, examining the causes of over four thousand deaths, and found that over sixty-two per cent. died from tuberculosis. It seems to me that it is to the magnitude of the case that one must look for the cause of the hesitation in grappling with it. The disease is not only wide-spread, but pursues such a long course that a satisfactory treatment of it (such as we would give a short, acute infectious disease) seems out of the question.

It stands to reason, however, that the State, if it is to take any interest in the health of its people, must not ignore the infectious nature of tuberculosis because it cannot do all it would, but must begin at once, and do what it can to limit its spread.

Let us consider for a moment what the State can do at once :

(1) It can proclaim the infectious nature of the disease, assuring the people that, inasmuch as the chief danger is from the sputum, if that be destroyed they need have little fear. It can inform them of the best methods of disposal of the sputum, and urge that all sputum in consumptives' houses, and in public buildings, be so cared for. By this alone probably thousands of lives will be saved. Knowing the danger, people will devise new plans of avoidance for themselves and thus benefit the State.

Surely our people do not wish to be kept in ignorance, but have established boards of health to keep them informed of and protected against danger to their health, as far as possible ; and if they find that the authorities have been remiss in this great matter,

they may not feel in a liberal mood when asked for future appropriations and concessions. If the proclamation of the nature of this disease had been longer pressed in its true light in the State of New York, I doubt if a tuberculous herd of cattle would have been recently released for want of funds to dispose of it.

(2) The State can use the weight of its authority and recommendation for the establishment of special hospitals, whither thousands, who are now a burden at home, or improperly cared for at almshouse hospitals, are willing and anxious to go. The class of patients which would voluntarily enter the hospital is just the class which, out of the hospital, is most conducive to the spread of the disease. It includes those who are too sick to work, and often too sick to care for themselves personally, and who fall back upon their friends, who are unable to provide for them except by sharing their already overcrowded lodgings, and overtaxing themselves in such a way as to make them easy victims to contagion. That we cannot isolate all affected subjects is no reason why we should not isolate a part, especially when those left in the community will be those most willing and most able to take care of themselves.

Other methods of combating the disease will come naturally, and be demanded by the people when once they appreciate the gravity of the situation.

Whether our boards of health should at once require notification of cases is a question about which opinions will differ. The object of notification, of course, is to insure that from the first every case is surrounded by every known safeguard by one competent and interested to do so. The objection to it has been, first, that it would unnecessarily alarm the patient himself, and, secondly, that it would so alarm the family and friends that they would treat him as an outcast. In regard to the first objection it will, I think, be admitted by those familiar with the treatment of these cases of tuberculosis that those patients have always done best who have been apprised of the gravity of their condition, especially when this was done early. The late Dr. Henry Bennet, of Mentone, insisted upon this, and then encouraged his patients to make a hard, intelligent fight. In regard to the second objection, that it would create a panic among the relatives and friends, I do not think this need be seriously considered, if they are told that the careful following of the rules laid down will remove danger almost wholly. Leaving the whole matter in

the hands of the family doctor, both in regard to the amount of information to be given and what precautions shall be taken, cannot be as efficacious as if this was done by an officer of the board of health. Unless the family physician thoroughly believed and was personally interested, it would not be properly done.

It seems unnecessary and unwise to attempt too much at first. It is not necessary in the beginning to even mention all the minor sources of infection, but there is no doubt the State must soon attempt the destruction of tuberculous cattle, for though meat, being usually cooked, is not a great source of danger, milk certainly is.

This Association was founded for the study of climatology and the diseases of the respiratory and circulatory systems. We have more to do with tuberculosis than any other association. We all know that something ought to be done to give the people the benefit of modern research, and it is our duty to so recommend. Therefore I shall propose in the business meeting a resolution calling upon all boards of health to issue bulletins of instruction in regard to the nature of tuberculosis, and the best methods of combating the chief sources of its dissemination, hoping and believing that this will prove any easy entering-wedge to more thorough and effectual means of controlling this most destructive disease.¹

¹ At the business meeting on the day following the reading of this paper, the Association unanimously passed the following preamble and resolution :

"WHEREAS, The American Climatological Association was founded, among other objects, to promote the study of the nature and treatment of diseases of the respiratory organs, and

"WHEREAS, Tuberculosis is the most fatal cause of such disease, and

"WHEREAS, Modern research has placed this disease among the communicable, and hence, to some extent at least, among the preventable diseases.

"Resolved, That this Association do strongly recommend the medical profession of this country to promote measures tending to its prevention."

Consumption.

A consumptive might not give his disease to his own wife or other members of his family, and yet fatally infect his down-town office by constant spitting on its floor, so that those who swept it or hired that office after him would fall victims to the disease likewise.—*Thompson.*

Cape May as a Health Resort.¹

BY ALBERT E. ROUSSEL, M.D.,

Assistant Professor of Practice and Clinical Medicine, Medico-Chirurgical College; Consulting Physician to the Temporary Home; Visiting Physician to the Howard Hospital.

AS a summer resident of Cape May for some ten successive years, I have had a fairly good opportunity of judging of its merits as a health resort, more particularly during the summer months.

During this period of time I have been especially impressed by the marked improvement manifested in that very large group of cases that are presumably benefited by a sea-shore sojourn.

Curiously, however, there has undoubtedly existed a rather wide-spread impression that the relative humidity at this resort was higher than at some of its more populous rivals.

With the object of obtaining some definite data upon this subject, I wrote for and procured the following interesting table from the Chief of the Weather Bureau at Washington.

As will be noticed from the table, the relative annual percentage of humidity is but 77, as compared with 80 for Atlantic City, and no one monthly average proves an exception to this general rule.

A study of the temperature-record is equally interesting. Although the mean annual temperature of Cape May is one and a fraction degrees higher than that of Atlantic City, yet it will be noted that the relative difference is but slightly marked during the summer and autumn months, but, on the contrary, is the most pronounced during the remaining portion of the year, which would only tend to emphasize the advantages of the Cape throughout the entire year.

This is especially true when we take into consideration the prevailing direction of the wind,—a point of no little importance during the summer season. On account of its insular position, the unwelcome land-breeze is a rare visitor, indeed, a direct north-west wind being alone responsible for its production.

Then, again, the manifest superiority of the magnificent

¹ From the Medical Bulletin.

beach, the absence of the particular crowds occasioned by cheap excursions, and last, but not least, the cleanly and well-kept streets must certainly appeal to those who seek health as well as recreation.

UNITED STATES DEPARTMENT OF AGRICULTURE.

WEATHER BUREAU, WASHINGTON, D. C., April 25, 1895.

MARK W. HARRINGTON, Chief of Bureau.

MEAN RELATIVE HUMIDITY. PERCENTAGES.

	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Annual.
Atlantic City, N. J. . . .	81.	79.	78.	77.	80.	82.	83.	83.	82.	80.	79.	80.	80.
Cape May, N. J.	78.	77.	76.	75.	77.	79.	80.	81.	77.	75.	73.	76.	77.

MONTHLY MEAN TEMPERATURE.

	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Annual.
Atlantic City, N. J. . . .	31.7	33.1	37.9	46.5	57.0	66.7	72.3	72.0	67.2	57.1	44.6	35.6	51.8
Cape May, N. J.	34.2	35.3	39.7	48.2	58.7	68.2	73.6	73.2	68.0	58.9	46.4	37.6	53.6

Grecian Gymnastics.¹

BY HANS BALLIN,

State Normal University, Carbondale, Ill.



GRECIAN gymnastics was closely allied to the sacred plays at which the contests of the different kinds of gymnastics took place. These were the Nænæan, Pythian, Isthmian, and above all the Olympic games.

With the birth of the Olympic festivities begins the development of Grecian gymnastics; at their prime it had reached its zenith, and at the close of these plays it also came forever to an end. The establishment of the Olympic games is to be traced to the dark ages, and myth names Herakles as the founder of them. He is said to have been victorious in a foot-race with his

¹ From Mind and Body.

brothers. After a long mythic period, the historic time of the Olympic agonism begins with Iphitos. The panegyric festival which had been celebrated now and then, and which at times was wholly forgotten, received a new impulse through him, and establishing strict rules, he decreed that these festivals should be held every fifth year (pentæteris). This was ever after strictly adhered to. The main incentive by which Iphitos accomplished this was the inauguration of the "truce of the gods." During the month of the festival all hostilities in arms were forbidden. The Elæan heralds announced the beginning of the sacred month in their own land and then in all other Hellenic states, and from the first day of it every Greek could go unmolested to the festival; he need not fear for his personal safety. Having thus fixed the commemoration of the festive games on a solid foundation, they suffered interruption no more. But the definite historic time begins when the victors in the different contests were rewarded and when Grecian chronology was reckoned from the celebration of the Olympic games. This was at the Twenty-eighth Olympiad, 108 years after the restoration of the games by Iphitos. In this festival the Elæan Koroibos was the victor, in the year 3938 of the Julian period, twenty-three years before the founding of Rome, 777 years before Christ. The victors at Olympia were crowned with a wreath of the wild olive-tree, and besides, as at all sacred games, received a palm-leaf in their hands, the latter, as Plutarch believes, because the palm is the emblem of strength, bent out of its natural position of growth, it always returns to its erect attitude.

The Olympiad in which Koroibos came out victoriously was again reckoned to be the first, and from then on 286 festive games were regularly celebrated. In 369, after many years had elapsed, Emperor Valens Augustus reorganized the Olympic agon. In the sixteenth year of the reign of Theodosius, and 293 Olympiads after the victory of Koroibos, these greatest of all national games went out of existence forever. This was in the year 394 after Christ. Two years later the wild hordes of Alaric passed pillaging through the Peloponnesus, devastating the country and destroying the magnificent treasures of art, the production of a thousand years of unmolested development in Hellas.

The Olympic sacred games had thus flourished through all Greece, from its mythic beginning to its final demolition, and were not suppressed even during the tidal waves of the migratory

movements. Since the restoration of the games through Iphitos 1279 years had elapsed, since the first Olympiad 1171 years. Through these games Grecian power had been developed, by them it has been strengthened, and with them it decayed,—a pronounced sign of the intimate relation of both and for the worth which a rationally established gymnastics will exercise upon the existence of a nation.

The Olympic games consisted of contests and races of horses. A musical contest was added to the Pythian, Nemæan, and Isthmian festivities, but was not found with the Olympic. At times famous orators, like Lysias and Lucianos, read their works to the assembled Hellenes at Olympia, but they did not enter into a contest. The free Greeks only, those who enjoyed all the liberties of a free man (later also Romans), were admitted to the contests, though barbarians were allowed as visitors. Women were excluded from witnessing these games under severe punishment. Strange though it may appear, maidens were permitted in the audience. The witnessing of these games was in itself an exertion, for in the hottest month of summer the audience was seated bare-headed.

The gymnastic contests were at the beginning of these games of a limited number, but were considerably increased in the course of time. During the time of their restoration through Iphitos till the beginning of the historic Olympiad running was the only contest. At the Fourteenth Olympiad the double stadium, twice the length of the track (2×600 Greek feet), was added. At the next festival the running of endurance was taken up. At this time it was also prescribed that the contestants had to practise naked. In the Eighteenth Olympiad wrestling and the pentathlon were introduced, in the Twenty-third Olympiad the combat with the fist, and in the Twenty-fifth Olympiad the contest of the chariot, drawn by four grown horses, augmented the list of the combat. In the Thirty-third Olympiad the first pancratiasts appeared and at the same time the races with one horse was adopted. In the Thirty-seventh Olympiad prizes in running and wrestling were bestowed on boys. In the Forty-first Olympiad the fist-fight of boys began, and in the Sixty-fifth the running in arms. The span of mules was introduced at the Seventieth and the race with a mare at the Seventy-first Olympiad. In the Ninety-third Olympiad began the races with two grown horses, in the Ninety-sixth the heralds and trumpeters contested,

in the Ninety-ninth the races with four colts, in the One Hundred and Thirty-first also with one colt, and in the One Hundred and Forty-fifth began the pancration of the boys.

The steady growth of the combat necessitated the lengthening of its duration from one day in the beginning to five days. This time, however, was not wholly occupied by the combats, but the sacrifices and processions also took place. Giving a short description of the principal combats, we naturally began with the oldest of them all.

(1) Running in its different forms. The simple foot-race was over a track which at times had a length of 1000 feet. The ordinary length of the stadium measured 600 Greek feet = 625 Roman = 569 Parisian = C. 180 metres. In the double-running contest this distance was twice this length. The runner, keeping at one side of the stadium, making at the end of it a short circle, returned on the other side to his starting-point. Both manners of running were either practised naked or in arms. The running of endurance consisted, according to agreement, over a number of several simple stadia, and varied from seven to twenty-two stadia. These efforts represented extraordinary feats and frequently resulted in the death of the combatants from complete exhaustion. Those who trained for runners had strong legs, but narrow shoulders. On this account Socrates disliked this exercise, because it did not develop the body all around. Running in arms was at first practised with shield, helmet, and jambes, but later a shield only was in use. In the earlier period the anointment of the naked body was unknown. Homer makes no mention of this practice. But when at the Fifteenth Olympiad the last raiment, the girdle (*perizoma*), was abolished, the runners also anointed themselves. At Olympia the boys took part only in the simple stadium running. The quiet promenading was highly recommended for dietetic purposes by the Grecian physicians. In many places of Greece the maidens also participated in an agon of running, but were not permitted at Olympia. Plato advised for them until their thirteenth year the nakedness of body, from then on a decent raiment.

(2) The jump was not practised as a separate contest, but formed an essential part of the pentathlon and follows running in a natural order. The Greeks used for jumping an apparatus, the halteres, resembling somewhat our dumb-bells. They were made of lead or iron. One of them taken into each hand they were

supposed to assist the body in its motion by swinging the arms forward just at the initial step for the jump and throwing them backward in the next moment. Some phenomenal jumps have been recorded, fifty and more feet should have been sprung without a start. These records have called forth a great deal of discussion and various explanations have been offered. While some claim the jumper was standing on an elevated, elastic stand-point, others claim the jump to have been alike to our step, hop, and jump. Neither explanation will account for these immense distances. For the best record of a hop, step, and jump with a start is not more than forty-five feet. The halteres were also made use of in the palæstra like our dumb-bells for dietetic gymnastics. The Greek physicians (Galen and Antyllus) prescribed their use. Aretæus recommended, besides other gymnastic exercises, the throwing of the halteres for chronic headache.

(3) *Wrestling*.—According to a mythic narrative, Palæstra, the daughter of Hermes, is the inventor of wrestling. Homer's heroes performed the wrestling combat girdled with the perizoma and without anointing their bodies. In the Fifteenth Olympiad the girdle was abolished and the bodies of the wrestlers were anointed and strewed with the sand of the palæstra. The act of anointing was performed by a special employé, the aleiptes. At the same time the wasted scales of the epidermis were scraped off by the strigil, so as to render the skin smooth and soft. Strict laws regulated the wrestling as to allowed and æsthetic movements. In standing wrestling the thrown wrestler rose again, and the combat began anew. The one who was thrown three times was declared conquered. The lying wrestling, the wrestlers were lying on the ground, was fought until one of the contestants admitted his defeat. The latter mode was not taken up in Olympia as a single event, but constituted a part of the pancration. For dietetic reasons a mild form of wrestling was recommended by some physicians, especially as a cure for obesity.

(4) *The Throwing of the Discus*.—The discus was a disk of metal, without a handle, of considerable weight. It was thrown right-handed from an elevated stand-point into the air and the place marked where it lighted the first time upon the ground. Who had thrown the discus the farthest was victor. The discus was never hurled at a fixed target. In this feat also enormous records are reported. The famous Kroton Phayllos is said to have thrown it ninety-five feet.

(5) *The Hurling of the Spear*.—The spear was hurled at a fixed target. This exercise was considered as a preparation for war. It exercised the right arm and sharpened the eyesight, and promoted a noble carriage of the whole body.

(6) *The Combat of Five—Pentathlon*.—This combat comprised the five exercises just spoken of. The aim of this composition was found in the desire to train the body, not for any special feat, but all around, so that it combined both strength and agility. Jumping, discus throwing, and spear hurling were only practised in the pentathlon; running and wrestling formed at times separate contests. The running contest of the pentathlon was a single stadium, or its double length without armor. The order of the exercises is not certain, but the description of Bökh seems to be acceptable. This names the jumping as the first, then the running, followed by the throwing of the discus, then came the hurling of the spear, and wrestling was the last of the five exercises.

Jumping was accompanied by the strains of the flute. It is not certain whether, to obtain the wreath of victory, it was necessary for one to be victor in all five events, or whether a *modus* prevailed, by which the one came out victorious who had won in most events. Aristotle declared the pentathletes as the most beautiful agonists, as they had to attain in an equal measure strength and agility. Also in dietetic consideration the pentathlon was valued.

FATIGUE BY MUSCLE LABOR.

(1) *Fatigue of the Lungs*.—The same kind of exercises before mentioned, which increase the activity of the heart to exhaustion, may also in a similar manner affect the activity of the lungs. While some exercises of quickness, as running, dancing or bicycling, have apparently a greater effect upon the heart, others seem to exert a stronger influence upon the lungs.

The sudden action of large muscle groups is conducive to a rapid and lively assimilation in the muscle tissues. Especially carbon dioxide is diffusely accumulated. By virtue of the self-regulating process of breathing the lungs try to rid themselves immediately of this dangerous gas by increasing the number and depth of inhalations. All auxiliary muscles used in breathing are called upon to assist in surmounting the great difficulty of the utmost effort. If the exercise of quickness is within the bound-

ary of the lungs' ability and the accumulation of carbon dioxide therefor not too excessive, as in running of endurance, rowing of endurance in moderate time, quiet swimming, etc.,—then the increased breathing is possible for a long time. It will be able to expel the gases whose volume is increased above normal condition nine times in quick running and twenty times in quick rowing. If the exercise of quickness assumes the character of highest effort, it will soon result in an exhaustion of breathing by an over-excitement of the regulating centres in the medulla oblongata. Breathing becomes panting. As soon as this stage of beginning breathlessness is reached, the cause of it, the exercise of quickness, will naturally be stopped. The interrupted process regains in a few minutes its normal condition. While in natural breathing we reckon twelve to fifteen breaths in a minute, this number increases from thirty to sixty breaths. The last figure is about the utmost effort, beyond which comes exhaustion of lung activity,—breathlessness.

The appearance of breathlessness in a mild form is a frequent occurrence in the practice of bodily exercises, and for sound lungs of no consequence. Not all exercises of quickness are conducive to the same degree of lung and heart fatigue. Not considering certain individual weaknesses, differences can be observed which are due to the activity of breathing. This is due to the fact that movements performed by the arms disturb the rhythm of breathing. The muscles of the arms and the shoulders which perform the chief work in rowing cannot at the same time serve as auxiliary muscles in breathing, hence the interference of breathing can well be understood. Different is the effect in running. A position of arms may be taken, so as to obstruct as little as possible in the auxiliary assistance of their muscles. In this exercise the fatigue of the heart is more pronounced. Almost equally exerted are heart and lungs in swimming. We cannot enter into a more detailed enumeration of differences of the exercises. A good deal of observation is still to be made by practical experiences and experiments.

(2) *Fatigue of the Brain.*—In a less pronounced degree than in those forms of fatigue described above is the effect of bodily exercise on the fatigue of the brain.

When practised passionately and long continued, foil fencing may be mentioned as an exercise which may cause a temporary nervous relaxation.

Otherwise there occurs fatigue of the brain in the practice of systematic physical training, (1) when the pupils have been mentally overworked for several hours in succession ; (2) when the exercises bear too much the character of mental work.

We reckon in these latter exercises (*a*) exercises of dexterity. With them it is less exertion of the muscles than great difficulty in surmounting complicated co-ordinated movements. Exercises of quickness at the apparatus are in a less degree difficult, as they allow previous thinking during the pauses and thus make co-ordination easier. The nerves are burdened to a greater extent by exercises which call for quick co-ordination and which tax the memory,—the compounded free-exercises, for instance. Above all others are to be mentioned (*b*) the exercises of attention. These require less a knack of co-ordinating ability, as to the contrary smoothly-executed movements under a constant strain of attention, these exercises to be performed by command or in rhythm and are to be done quickly and accurately. To these exercises we reckon the tactic exercises, which ask for very little muscular exertion, but a continuous strain is exercised upon nerve and brain ; also roundels, if they ask for memory work, as also simple free exercises which are practised in the quickest possible succession with greatest accuracy.

The mental fatigue of these exercises becomes evident whenever the attention slackens and the performance of the exercises becomes faulty in spite of vigorously-given commands. The pupils show carelessness and indifference. The greatest severity and utmost effort of the teacher is unable to compass this indifference of the pupils and to force them to accurate and exemplary execution. The gymnasts have relaxed : their over-taxed brain is not capable of a strong will-impulse, all mental effort is absent for the time being.

The practical lesson lies near by. Such exercises as demand continuous mental effort can only be asked from pupils who have not been mentally overworked, and not from those who have had a good deal of mental strain in their previous instruction. A method of gymnastics, which does not adapt itself to the surrounding conditions, and merely follows a set formula of exercises, is to be condemned from a hygienic point of view.

(3) *General Fatigue (Exhaustion)*.—Exercises of endurance which can be performed for hours of continuous work, represent

an enormous sum of actual labor. They do not show any over-fatigue of one or more muscles, or of the heart, or of the lungs, or of the brain. Still, by exercises of endurance the actual mechanical labor excels greatly that which is accomplished by other forms of exercise,—the exercises of strength or quickness. These cannot be practised for the same length of time, for fatigue will set an early end.

Labor which may be continued for hours, this being accomplished by its distribution over large muscle-districts, is not without effect upon the body, but will show, if taken too long, severe and more prolonged signs of fatigue than those described heretofore. Let us take, as an example, a march of six to eight hours' duration. The men carrying knapsack and arms. The road has become muddy and impassable by rains. Every step is taken under difficulty. The limbs become heavy, the steps smaller and drag along. The continuous labor decreases the efficiency of the muscles of the legs, whose irritability is lessened. The latter circumstance demands greater will-impulse for the continuation of the march. The brain must do more work and also fatigues. On this account the spirits of the men are low; mirth has left them, and no song, no joke will be resorted to. The most beautiful scenery does not attract their attention, the setting sun and the bright stars have no charm for them. They are blunt for things otherwise cherished. At the end of the march all long for immediate rest, and no other desire prevails. Hunger and thirst do not excite them, though they have abstained from it for hours. We feel the pulse, which is weak and beats from 100 to 120 times a minute; the temperature is from 39° to 40° C.,—*i.e.*, fever temperature. Slumber does not come to the fatigued, and a restless night is spent. The next morning the fever has passed off, but the whole body feels as if it had been beaten. The urine has a heavy sediment. Slowly comes back the desire for eating and drinking. The second night the desired sleep is found, and the next day a normal condition is regained.

Such general fatigue passes by more or less rapidly, as the afflicted are used or not to the hardships. They are more liable to occur with children and boys and with adults who are inclined to obesity than with person of lean corporal constitution and well-developed muscles.

As mentioned above, exercises of unusual duration are liable to result in the described appearances of fatigue, as very long marches, rowing, or swimming over long distances, etc.

A special form of fatigue is marked by a continuous nervous weakness, resulting in a deranged nutrition, insufficient blood, and a falling off in weight. This condition of being "worn out," of being "overworked" may appear, when for a time extraordinary bodily and muscular demands are made upon a person. The preparations for special feats at contests, especially the professional training for athletics, is conducive to elicit such conditions, as will reduce for weeks and months all bodily energies.

(4) *Theory of Fatigue*.—An entirely satisfactory explanation of all appearances of fatigue is not yet attained. The question of the nature of the processes in the active nerves and muscles, of the more minute chemical changes which occur in muscle labor, of the materials secreted by it, and of the effect which these have upon the muscle tissues, of the sources of force which are used of the muscle and of their replacement, all this is not yet satisfactorily answered. All of this is in the domain of physiology, which offers the most trying tasks.

Beyond a doubt is fatigue a sort of regulator of bodily labor; it announces an approaching danger of the organism and the signs of fatigue are all the more peremptory, the greater the danger becomes through the excess of labor. But what causes the danger? The decomposed products which act like a poison in the body. Thus fatigue is the sequel of self-poisoning of the body through the waste material of labor. That waste material, which most directly causes the most severe appearances of fatigue, is carbon dioxide, which by its plentiful accumulation through the highest efforts of exercises of quickness, effects the most violent acceleration and depths of breaths, resulting in exhaustion of breathing. A doubt of the condition of cause and effect is here excluded.

On the other hand, there is uncertainty regarding the other real materials of fatigue, and the extent of their poisonous effect. Though it seems almost evident that the reduction of the irritability of the muscle, and principally the morbid appearances after exercises of endurance, are due to these poisonous waste materials.

In local exertions of muscles through exercises of strength are to be reckoned as causes of fatigue, mainly in regard to the pain of muscles, the stretching, extensions, laceration, and confusion of the tissues of the muscle.

Regarding the grave effects of exercises of long duration, and especially the disturbances to nutrition after over-work (over-training), another circumstance is to be considered that for the muscle labor not only the reserve fund of the body is used, but, finally, also real living tissue.

In general the different appearances of fatigue may be classified as local fatigue of muscle after an exercise of strength, fatigue of brain—or general—exhaustion after an exercise of endurance. The fatigue of heart and lungs are to be classed in the latter.

They also may be classified in regard to direct appearances of fatigue—breathlessness, acceleration of pulse, lameness of muscle, loss of mental effort and will impulse—and after effects: lameness and stiffness of muscles, tired limbs, sleeplessness, etc.

The importance of the study of the appearances of fatigue for the knowledge of the effects of bodily exercises, becomes self-evident from what has been said in the foregoing.

Innocuous Transportation of the Dead.¹

BY J. D. GRIFFITH, M.D.,

Kansas City, Mo.

THE age demands a far greater protection of the public health. I am convinced that we owe to the travelling public that greater precautions should be taken in the transportation of the dead body. This assembly has for its motto "Protection from Disease," "an ounce of prevention is worth a pound [yes, ten pounds] of cure." Pepper, in his most estimable work on "Theory and Practice of Medicine," gives us a marked evidence of the virulence of a dead body; he says, "In a Normandy village twenty-three years after an epidemic of diphtheria some of the bodies of those who died of the disease were exhumed and an epidemic at once broke out, first among those who opened the grave, and spread from those to many others."

If I am correctly informed, a very severe epidemic of yellow fever in the South was started up by the removal of dead bodies,

¹ From the Journal of the American Public Health Association.

in 1878, from an old burial ground, where the interment had occurred in 1853.

The State boards of health, throughout the country, and every practitioner of medicine, will limit the attendance, if possible, of a funeral when the little one has passed away from measles, scarlet fever, or diphtheria. Health boards throughout the country order the thorough cleansing of a house and rooms after small-pox, measles, or diphtheria.

Our boards of health at once established a quarantine, on account of the ship or train on which there is a case of cholera, typhus, or yellow fever. They look to the little well and cess-pool near it from which your local epidemic of typhoid has arisen. We all now seem to look upon our most formidable enemy, the disease which carries off more of earth's inhabitants than all plagues and wars combined, consumption, as a disease of contagion and infection, and not heredity.

Until we are educated to the point of the thorough sanitation of cremation, the transportation of dead bodies by the railways is, and always will be, a source of very great danger.

Is ever the source of infection completely and safely stamped out by the preparation of the undertaker? It matters not, seemingly, how tightly the coffin is secured, you will only have to step into a baggage-car containing one or two bodies, and you do not have to look to find out from whence emanates the odor, but you know at once that there is a corpse in the car.

In 1888 the National Association of General Baggage Agents, including most, if not all, of the main carriers of the United States, adopted a schedule of rules and forms to govern the transportation of corpses, to wit :

Rule 1.—The transportation of bodies of persons dead of small-pox, Asiatic cholera, typhus fever, or yellow fever, is absolutely forbidden.

Rule 2.—The bodies of those who have died of diphtheria, anthrax, scarlet fever, puerperal fever, typhoid fever, erysipelas, measles, and other contagious, infectious, or communicable diseases, must be wrapped in a sheet thoroughly saturated with a solution of bichloride of mercury in the proportion of one ounce of the bichloride to a gallon of water, and incased in an air-tight zinc, tin, copper, or lead-lined coffin or in an air-tight iron casket, hermetically sealed and all inclosed in a strong, tight, wooden box ; or the body must be prepared for shipment by being

wrapped in a sheet and disinfected by a solution of bichloride of mercury as above, and placed in a strong coffin or casket, and said coffin or casket incased in a hermetically sealed (soldered) zinc, copper, or tin case, and all enclosed in a strong outside wooden box, of material not less than one and a half inches thick.

Rule 3.—In case of contagious, infectious, or communicable disease, the body must not be accompanied by any articles which have been exposed to the infection of the disease. And in addition to a permit from the board of health, or proper health authorities, station agents will require an affidavit from the shipping undertaker stating how the body has been prepared, and kind of coffin or casket used, which must be in conformity with Rule 2.

Rule 4.—The bodies of persons dead of disease that are not contagious, infectious, or communicable may be received for transportation to local points in same State, when encased in a sound coffin, or metallic case, and enclosed in a strong wooden box, securely fastened so that it may be safely handled. But when it is proposed to transport them out of the State to an interstate point (unless the time required for transportation from the initial point of destination does not exceed eighteen hours), they must be encased in air-tight zinc, tin, copper, or lead-lined coffin, or an air-tight iron casket, or a strong coffin or casket encased in a hermetically sealed (soldered) zinc, copper, or tin case, and all enclosed in a strong outside wooden box of material not less than one inch thick. In all cases the box must be provided with four iron chest handles.

Rule 5.—Every dead body must be accompanied by a person in charge who must be provided with a ticket marked "corpse," and a transit permit from the board of health or proper health authority, giving permission for the removal, and showing name of deceased, age, place of death, cause of death (and if a contagious or infectious nature) the point to which it is to be shipped, medical attendant, and name of undertaker.

Rule 6.—The transit permit must be made with a stub, to be retained by the person issuing it; the original permit must accompany the body to destination, and two coupons; the first coupon to be detached by station agent at initial point and sent to the general baggage agent, and second coupon by the last train baggage-man. The stub permit and coupons must be numbered, so the one will refer to the other, and on permit will be a space for undertaker's affidavit, to be used in cases in infectious or contagious diseases as required by Rules 2 and 3.

Rule 7.—The box containing corpse must be plainly marked with paster, showing name of deceased, place of death, cause of death, and point to which it is to be shipped, number of transit permit issued in connection, and name of person in charge of the remains. There must also be a blank space at the bottom of the paster for station agent at the initial point to fill in the form and number of passage ticket, where from, where to, and route to destination of such ticket.

Rule 8.—It is intended that no dead body shall be removed which may be the means of spreading disease ; therefore, all disinterred bodies, dead from any disease or cause, will be treated as infectious and dangerous to public health, and will not be accepted for transportation unless said removal has been approved by the State board of health, and the consent of the health authority of the locality to which the corpse is consigned has first been obtained, and the disinterred remains, enclosed in a hermetically sealed (soldered) zinc, tin, or copper-lined coffin or box encased in hermetically sealed (soldered) zinc, tin, or copper cases.

These rules, of course, were made for the protection of the public against dangerous communicable diseases. While self-interest, to a very great degree, on the part of the corporations in the protection of their patrons and employés against pestilential danger probably prompted this action, none of us can doubt but that our whole country has been benefited, since most of the State boards of health have not only approved but adopted these rules, as they were originally or with very little modification.

None of you doubt but that dangerous maladies have been spread by handling and shipping the dead body.

NOTE.—The approval of the State board of health for disinterment must be attached to the transit permit.

Our boards of health throughout the length and breadth of the land have declared consumption (tuberculosis) a disease dangerous to public health. We all admit at once the communicability of diphtheria, scarlet fever, typhoid fever, measles, and small-pox. The boards give explicit directions about funerals of persons dying from any of these latter troubles, the germs producing most of these troubles you have demonstrated. It is only reasonable to suppose that every disease that we are heir to has for its origin some little bug ; these are gradually being developed by our pathologists. It is not at all reasonable to say that these microbes do not stop their development and virulence after

breathing ceases, and we know full well that their powers of infection are almost unlimited.

Our dead, it matters not to what disease they succumb, are dear to each and every one of us. Let one of them die far away from home of diphtheria, scarlet fever, measles, or any other contagious or infectious disease and the State board of health at once (and with very good reasons) says the body must not be shipped, or if so, it must be wrapped in a strong solution of bichloride of mercury (1-125), and packed in a specified casket. I would ask, Is there a man within the sound of my voice who thinks that the baggage-man is safe under the circumstances? This same should hold good with the consumptives whose bodies, as a rule, are not nearly so well encased. In fact, the employé confined in a car, particularly when closed, with any dead body is ever in danger; and I have no doubt but that many a life has been cut short from this cause.

Would it not be better, at a very little additional expense on the part of the railway companies, to cut off a small portion of their baggage-cars for transportation of bodies? This done, no employé's life can be endangered; no broken open box or trunk can become infected; no odor through the car,—it matters not what the cause of death or how poorly the body was prepared for shipping.

The following plan seems to me to be both feasible and practical: The length of an ordinary baggage-car is from fifty to sixty feet, the width on an average is about nine and a half feet, the space required for the largest coffin and box (outside packing) would be twenty-eight inches in width, and six feet eleven inches in length. This much of a cut-off at the end is all that is required. The box can go into said zinc-lined compartment, through an outside door made very much after the fashion of a large ice-chest. The metal-lined compartment extending from the floor to the top of the car would easily accommodate half a dozen bodies.

It seems to me that the American Public Health Association is the organization that should call the attention of the different legislative bodies of the land to a subject of such vital importance.

Summer Comfort for Babies: With a Hint on Colds and Hay Fever.¹

BY CHARLES E. PAGE, M.D.,

Boston, Mass.



MAN is not by nature a clothed animal, said Carlyle, in "Sartor Resartus," and the writer has three little ones, aged, respectively, 9 months, 2½, and 4 years, who seem to agree with the Sage of Chelsea; they are never so happy as when they are naked. Four years ago (June 14, 1890), the eldest, a girl, was born, and during all the hot weather we kept her comfortable and happy "in her figure," literally. She was sufficiently blanketed at night and during the cool of the morning and evening, of course; but in spite of Mrs. Grundy she was kept naked much of the time, and with unfettered limbs she was creeping, or, at any rate, hitching, her way across the floor before she was 4 weeks old. Her unusual strength was due to our practice of non-tending, as well as to the freedom of body and limbs.

The more intelligent of our visitors, to whom she was exhibited, were delighted with the evidence of absolute comfort they beheld, and they straightway manifested a disposition to help their own little relatives as much as they could by stripping off some of the extra folds of flannel under which the little wretches were sweltering and half-smothering. But some one, we never learned who, informed the S. P. C. C. of the outrageous treatment of the little innocent, and looked for our arrest and summary punishment doubtless, and, perhaps, the adoption of the babe by the State; but it so happened that my little Nursery Guide, "How to Feed the Baby," published in 1882, was dedicated to the Society for the Prevention of Cruelty to Children, and so the president smiled benignly on the good soul who lodged the complaint, and assured her that if Dr. Page's baby died of frost-bite during the summer the case should be carefully investigated.

Something like 10,000 to 12,000 children have died, under the age of 5 years, in this city since the occurrence of the little

¹ From the Medical Record.

episode referred to, while our little girl continues to thrive, and to pull off her shoes and stockings the instant she enters the house from her outings, and both she and her little brother have time and again distressed the maid by cutting up that caper and going barefoot on "the Avenue." Numbers two and three have since come to us, and they share their elder sister's dislike for clothes. All three go barefoot in the house all the year around, and much of the time when out, and wear very slight rig at all times.

Next to a bad inheritance—many children being born too tough to kill, while some are so frail by nature that no kind of management will enable them to pull through—the principal causes of infant mortality are :

(1) Excessive feeding, digestive capacity being lessened by lack of exercise and overwrapping.

(2) Constant tending, and constant lack of natural exercise, so essential to vigor of body and digestive power.

(3) Excessive clothing, so depleting in many ways to the animal organism, the skin, a breathing as well as an excreting organ, being forced to get on with foul air instead of fresh, while the pressure of clothing, all the worse if a belly-band is used, interferes seriously with the circulation of blood in the skin, etc.

(4) Lack of fresh air in the home, very few homes being sufficiently ventilated.

"Why don't they catch their death o' cold?" Perhaps one reason is that, if the truth were known, none of us catches the disease in that way ; it is rather a disease of accumulation of foul matters from the causes already named, and when the system becomes surcharged with filth and certain symptoms appear, we say,—those of us who know no better,—“He has caught cold !” The fact of the matter is that it is rather a lack of cold, and hence the prediction of Dr. Felix Oswald, that the time will come when every sanitarium will be supplied with an immense refrigerator for the treatment of “colds.” (I can never bring myself to repeat the name except with quotation marks.) The adult victims of flannels and a diet unsuited to the season, hundreds of whom (physicians as well as laymen, it must be confessed) flock to the White Mountains every summer to avoid “hay fever,” might take a hint here and live in comfort in any part of the country. They might go to the mountains for fun, but not as a lot of sneezing, over-

grown infants, to babble about the hoped-for specific. How often I have observed a babe who could not suck and breathe at the same time for "snuffles," completely relieved within a half minute by removing a large share of its clothing, and having a cold, damp towel pressed over the forehead, temples, and top of the head, sending a cool wave in to relieve the congested parts. It should be a cool, damp towel, by the way, not ice-cold for an infant; but the grown snuffling may employ more vigorous measures.

867 BOYLSTON STREET.

Diet for the Sick.¹

BY MISS HELEN LOUISE JOHNSON.



WITHOUT proper cooking no food is palatable, and unless the palate is satisfied, food is practically useless. Hunger compels a person to eat, and in his choice of food the palate is his guide. In general, the needs of no two individuals can be satisfied by exactly the same diet. In sickness it is the province of the physician to adjust the food to the condition of the patient. In convalescence, the taste of the individual or the judgment of the nurse, or both combined, will usually not fail of good results. Bear in mind that a sick person is not in the same condition as ourselves, and, no matter how absurd his cravings may seem, they may be but natural longings for that which his system needs.

In the first place, I want to tell you how to prepare beef-juice. Take a pound of beef from the round and cut it very fine. Put it in a glass jar and place the jar in cold water on the back of the stove, where it will slowly heat for an hour; then bring it to the front of the stove, where the water will simmer, not boil, for an hour.

Beef-tea is made much the same as beef-juice, with the addition of a cup of cold water to every pound of meat before the meat is put into the jar. The beef is also taken from the round end chopped very fine.

Beef-extract and beef-tea are entirely different things, but the distinction is very rarely known. If the patient is taking a table-

¹ From the Journal of Practical Medicine.

spoonful of beef-juice, he is taking as much nourishment as there is in a cup of beef-tea.

Beef-juice or beef-extract is prepared in many different ways. In giving a lecture on soups, I explain why we put cold water on meats. The principle applies to beef-tea as well as to making soups. If you add hot water, it coagulates the juice, while the cold water draws out all the juice. Hard water prevents the juice coming out also. The moment that salt is added to water, it makes it hard and it does not let the juice out. If the water be very hard, soda must be added, which will make it soft.

Now, what I want to do in a "sick-diet lecture" is rather to suggest what to do. Have a physician upon whom you can depend; and I can tell you nothing better for your guidance than never to have a physician unless you can place reliance on him. When beef-tea might be given a patient, you must consult the physician. If the physician does not know how to prepare it, he will, at least, tell you what to prepare.

Beef-juice is an important part of the sick diet. When your patient is in a very reduced state, nourishment by the spoonful might be given him. If the patient is sick a long time, he often becomes very tired of it before many weeks are over, and the greatest care must be taken in the preparation of his food. Pepper must never be added to beef-tea, which is an important point in serving it. Pepper and vanilla must be entirely done away with; they have no place in the diet of the sick unless prescribed by the physician.

In preparing beef-juice you can broil the beef. I am going to take a pound of beef and show you how much juice comes from it when it is broiled. Beef-tea or beef-extract rarely look well unless they are colored, and consideration in this matter should be had, particularly for a patient in a reduced state.

In making beef-essence or beef-tea, buy the best meat, as good beef-tea cannot be made from gristly meat. Take the beef from the round and put it on the broiler, and broil it only enough to start the juice; chop it fine; slowly heat it, never passing the simmering point. Beef-tea and beef-extract must never boil so the juices are coagulated. Season with salt, but never put in a slice of onion. Beef-essence may also be made by chopping the meat from the round very fine and putting it in a braising-pan, with a bay leaf and a piece of celery. The pan may then be placed in a moderate oven, and the meat be left to stand there

until the juice is well started. The juice is then squeezed from the meat and served as in the foregoing instance. The braised beef-extract tastes entirely different from any of the other juices, and it is a pleasant change when a person has to take it from day to day.

I now want to speak on the subject of gruels. The gruel is usually served as a porridge, and I first want simply to show you the consistency in which gruels should be served.

The farina gruel, which is a form of gruel that is the easiest to give because the most palatable, is prepared in this way: To a cup of boiling water add a salt-spoonful of salt; when boiling, sprinkle in one tablespoonful of farina. When it has cooked about ten minutes, turn it into a farina boiler and add a cup of milk and cook again for about five minutes. Milk should never be boiled to give to a patient unless in severe cases of dysentery or other similar serious diseases, when it must be boiled. Milk should always be scalded. Scalded milk can be taken day in and day out. I think boiled milk is thoroughly indigestible. The moment it is cooked, after taking it a few times, even three or four times, the stomach rejects it. In cooking the farina gruel in which milk is cooked, never do anything more than scald the milk. The farina boiler should be used. The farina boiler is a peninsula,—a sauce-pan surrounded on three sides by water.

Whether a thing is palatable or not to a patient depends much upon how it is served, and these things are rarely served in the proper way. As much depends upon how it is served, the proper serving of it will help much towards curing the invalid. If you want to sweeten the gruel, a little granulated sugar or loaf sugar may be used: pulverized sugar and other sugars may be the most expensive, but they are not the most wholesome. Pulverized sugar should never be used for the sick, and, ordinarily, people do not like it. It must be remembered that gruel is a gruel and not a porridge. It should be served so that it can be poured into the patient's mouth if necessary,—so that it can be poured down his throat instead of having him sit up and be fed with a spoon.

We now come to milk-punch and egg-nog. The best milk should be used. Skimmed milk is not food. Milk-punch and egg-nog want cream or very good milk. They want that which gives energy, and skimmed milk does not give energy. In making milk-punch scald a cupful of milk and add two teaspoonfuls of sugar

to the milk and stir until dissolved, then add a tablespoonful of brandy. Never use wine unless a physician tells you to. Invalids must take stimulants entirely under the advice of a physician ; never according to their own ideas. Always use brandy unless otherwise advised by a physician. After you have beaten it until it is foamy, do not fill the glass so it runs over, but fill it almost to the top. Have a small glass and fill it about full instead of filling a large glass half full. Milk-punch and eggnog are served where a person needs considerable nourishment ; also where a patient needs a stimulant. Sometimes he needs more than the simple nourishment, and the egg and milk together make a very concentrated form of food. It can be made with the whole egg, or the yolk alone can be used. Mix the yolk with two teaspoonfuls of sugar ; add one cupful of good milk, either warm or cold, and at once add one teaspoonful of brandy. Then beat this up lightly and quickly and turn into a glass.

In case of fever, anything cool assists the patient very much more than anything warm, and in such a case the cold eggnog is very desirable. There are really very few forms of food to give a patient in case of fever. I can this evening only give you suggestions, and I am here going to suggest a few things to give under those circumstances.

The first form of eggnog that I gave you was made with the yolk of an egg and a cup of milk and a teaspoonful of brandy. When the patient must have more albuminous food, the white and yolk must be given. The brandy will at once cook the egg, —as soon as it reaches it. Eggs should be beaten stiff and dry. Eggnog should be given slowly. If a patient drinks milk rapidly, it will not be digested. When milk is given to a child or to a patient, it should be taken slowly, not rapidly, in order to nourish the patient who takes it, and eggnog should be taken in the same manner. The third form of fluid food is wine whey. It is often prescribed by physicians, but many people have not the faintest idea what the physician is talking about. Wine whey is very simple to make. If you are in a hurry, put a cupful of milk in a farina boiler and let it scald, add a quarter of a cup of wine, and let it stand until the albumen of the milk is curdled. When you strain it you have the whey without the curd. Very often physicians give the curd with the whey. The curd must then be chopped very fine or pressed through a sieve. Only a small portion should be given.

I shall now talk of convalescent food. The first is the ever-present beef-tea, which can be changed from day to day. It can be flavored with a bay leaf or a little celery, or when the physician will allow it, with a little tomato.

In preparing an egg for a patient it is best to use an egg-cup, which obviates the necessity of experimenting with many eggs to obtain the proper consistency. Break the egg and put it into the cup until it is boiled to the proper consistency. Boiled eggs for a patient should always be boiled soft, never hard. When you boil an egg hard, the white, the albuminous portion of the egg, is coagulated, and the yolk often remains soft. That is not the proper way of preparing it. The yolk of the egg when soft is perhaps not very unpleasant to the taste, but the white of the egg improperly boiled is exceedingly unpalatable. The white and the yolk must be boiled alike. In boiling an egg for an invalid, it should be put into an egg-cup, so as to see the consistency.

Poached eggs may be given convalescents. In poaching an egg separate the yolk from the white. Boil the white first by slipping it on to the water, and as soon as it begins to coagulate, drop the yolk on to the white. Poached eggs are very pretty and digestible, and when perfectly prepared are very palatable. The white is not palatable when almost raw, and, as said before, though the yolk is not so bad when but partially cooked, it should have the proper consistency and be rightly prepared for the sick. Eggs should be served poached or broiled,—in no other form.

Broiled beef-pulp might be mentioned next. I do not mean Hamburg steak, but simply the pulp of beef broiled. It is very pleasant to the taste, and is prepared in this way: Take a pound of raw beef from the round, and with a sharp knife scrape across the grain until the pulp is scraped from the fibres; make it into small cakes, and broil it over a hot fire. When thinly spread on delicate slices of bread it is very palatable.

Chicken, game, steaks, and chops may be given convalescents. There is but one way of broiling steak for the sick, and that is the English way. Three chops are broiled, placed as an under, upper, and middle slice, and the middle one only is given to the patient.

There are very few patients who cannot be given ice-cream. People who are ill crave such things, and very often their cravings are a proper guide. I know a case in which ice-cream saved a


patient's life. Ice-cream can be taken before anything else to a patient in a hospital. Rice may be given, but never unless it is cooked properly. Never give any one who is sick anything fried. Never fry a beefsteak. Fried potatoes, it is perhaps needless to say, should never be given a sick person. Very often an invalid desires things that seem absurd, but they only seem absurd because we cannot put ourselves in the place of the patient. We have our ideas of how they should feel, and not their ideas of how they do feel. Sometimes their desires may be just what the system needs.

Above all things, serve the food daintily and prettily to a patient. His appetite is greatly influenced by the appearance and the manner in which the food is served, and nothing can be too good for our sick.

School Hygiene.¹

BY JEROME WALKER, M.D.,

Brooklyn, N. Y.

HE objects of this paper are, first, to evoke medical discussion and elicit opinions upon an important sanitary subject, which is also a timely one, as it is being considered by our local board of education ; secondly, to emphasize the importance of an active indorsement on the part of the medical fraternity, and especially of medical societies, of efforts that the board of education may make from time to time to maintain the health and consequent working ability of the pupils and teachers of our public schools.

Physicians are in general conservators of the public health, as the board of health is in particular. It is entirely within the province of our medical societies, representing the physicians of our city as they do, to offer suggestions to the board of education as to sanitary matters pertaining to schools and school-life. Such suggestions should, in my opinion, be made through the health committee of that board, which at this time is composed entirely of physicians. Such suggestions coming from a legally constituted medical society would have weight, and more weight than

¹ Read before The Kings County Medical Association.

if they were the outcome of the views of any individual physician. For example, when the board of education recently asked the board of estimate for several thousand dollars to be expended in the sanitary improvement of the schools, if such a request had been indorsed by the medical societies of our city the request would probably have been granted. As it was, the request was not granted. There were excellent reasons for such a request. Tax-payers, knowing of these reasons, through physicians, would not have grumbled at the expenditure. Such suggestions would not interfere with the work and prerogatives of our city department of health, as most of its attachés are members of the medical societies. In fact, they would assist the health authorities in the performance of their duties. But whatever suggestions are offered should be very carefully considered, and only after a thorough study of the conditions of public school life and their relations to the family home life of the pupils and the welfare of the community in which the schools are situated.

Sanitary science strictly applied would in the case of an overcrowded tenement demand that the resident population be straightway diminished or the building be pulled down. But in the case of an overcrowded school, when the educational authorities are doing all they can to erect new school-houses to provide accommodation for the ever rapidly-increasing number of pupils, the summary closure of a school would create discontent and new and even more serious difficulties to contend with. To insist always upon as many cubic feet of air-space for children in school, where the air is freshened and vivified before and after school hours and at recess times as for children in their living rooms at home is hardly practicable, and in most instances not advisable. The local government board of England, in reference to some of these matters under consideration, states, "Closure of schools is a grave step for sanitary authorities to make and seldom should be undertaken except in an actual epidemic, nor then as a matter of routine nor unless there is a clear prospect of preventing the propagation of disease not to be attained by other means.

"A matter of importance in deciding as to closure is the opportunity for inter-communication of pupils outside the school. In small hamlets this is slight. In some sections of cities, as in tenement districts, more harm than good may be done by closing." The fact is, that school hygiene, in its relation to the problems of public school life in our large cities, has not, as yet, received the attention it should.

In March of last year I read a paper before the department of pedagogy of the Brooklyn Institute upon "The Need of Sanitary Supervision of Schools" as an aid to this study. This paper was for principals and teachers of schools, and depicted the ideal school as opposed to the average public school in our large cities. It was intended to arouse among principals and teachers a sanitary *esprit du corps*, without which proper sanitary supervision would be extremely difficult. It is believed that the paper was of service in this direction. In it the statement was made that Brooklyn had (within the last dozen years especially) made some important advances in the direction of healthful school-houses in healthful localities, but that there was still room for improvement. It is doubtful whether there will ever be in our large cities many ideal public schools; but we can aim to have them. The massing together in one school of one or two thousand children from the various walks of life, induces unsanitary conditions not to be found in schools in towns and small cities, and it seems self-evident that to ameliorate these conditions medical supervision is necessary, and the suggestions for improvement should come mainly through medical channels, as the consideration of such conditions is a part of a physician's training, and not the training of laymen. That our local board of education has considered the necessity for healthful schools is seen, especially in the newer schools, where air-space, ventilation, heating, floor-space, etc., have been carefully looked into. It is also seen in the rules and regulations of the board and in the minutes for the last ten years which I have examined. While unsanitary conditions are present in some of our school-houses and among pupils, especially in the poorer sections of the city, it is but fair to remember that some of these conditions are due to the want of necessary money for school purposes. I find in the records of the board of education an elaborate report, with valuable suggestions, by the heating and ventilating committee, made in 1883, in which was pointed out the insufficient air-space for pupils, in some instances as low as 89.7 cubic feet, when it should be 250 cubic feet, as recommended by the State superintendent of public instruction. Second, insufficient floor-space, 5.57 square feet the lowest, when it should be from 15 to 18 square feet. Third, two children to a desk and class-rooms having seventy or more pupils to one teacher, etc. This report produced good effects and was adopted in January, 1884. The present regulations of the board require for each

primary pupil 12 square feet of floor-space and 200 cubic feet of air-space; for each grammar grade pupil below the fifth grade, 14 square feet of floor-space and 225 cubic feet of air-space; for each pupil above the sixth grammar grade, 18 square feet of floor-space and 250 cubic feet of air-space. It is required that the air in the rooms be changed from three to six times per hour. No seats are to face windows. Each pupil is to have a single desk and seat. Fifty-six primary pupils is the maximum allowed in a class-room. In the grammar department, below the fifth grade, 48; above the sixth grade, 40. The temperature of each room is to be registered daily at 9.20 A.M., 11.30 A.M., and at 2 P.M., on cards provided for that purpose. No pupil is to be received into school that has had scarlet fever, diphtheria, small-pox, measles, or any other contagious disease without a permit from the board of health. School hours are from 9 A.M. to 3 P.M., with one hour recess at noon. In grammar departments there is ten minutes' intermission in the morning. In primary departments a recess of twenty minutes in the morning and afternoon, and no pupil is to be detained in the class-room during recess. No pupil is to be sent out at recess time without an opportunity to put on his outer clothing. The school-house committee, comprising among its members men conversant with construction of buildings and sanitary requirements of school buildings, has given much attention to the school buildings and has shown how important and necessary alterations cannot be made for the want of money, and the superintendent of buildings has from time to time called attention to the importance of sanitary arrangements and appointments, and has objected to the tendency to concentrate large numbers of pupils under one roof, rather than in separate schools at suitable distances from each other. Such a course, he says (May 7, 1889), "is conducive neither to health, safety, nor economy, nor to the architectural beauty of a city in its school buildings."

The health committee has from time to time reported on the bad sanitary conditions of certain schools and pointed out measures of relief. It has provided for the vaccination of school children whose parents cannot afford to pay for the operation. It has effected the examination of all the school children of the city with reference to the need for vaccination and has obtained valuable information for future use. It has succeeded in a partial sanitary inspection of schools and has paved the way for a more permanent and thorough one.

There is need in all cities of such an inspection, even if school commissioners are alive to the importance of healthful schools. The personal hygiene of pupils should also be looked after. The massing together, as we have before alluded to, of many school children induces unsanitary conditions, the importance of which is likely to be appreciated only by a medical officer, whose business and training it is to find them out. Sanitarians and students of pedagogy have for a long time known that, as a rule, the best possible mental and physical culture is not obtained in the large public schools of cities, owing to a depreciation of vital stamina due to the atmosphere of infectious diseases, the inadequate arrangements of schools and school appliances and to the methods of school work. Of course, there are grand exceptions to this condition of affairs and there are schools which are almost ideal, where infectious disease seldom, if ever, enters, due to great precautions observed, where schools, school-desks, black-boards, the light, heat, text-books, etc., cause, at least, little or no physical discomfort; where the methods of school work are adapted to the physical and mental health and strength of each pupil. Such is the ideal school, and such a school is rarely seen, nor will it be often seen in our large cities. Yet, we can hope to attain somewhat to the ideal by observations of certain sanitary requirements.

(1) *As to Infectious Diseases.*—The ordinances of the city of Brooklyn prohibit any child having scarlet fever, diphtheria, small-pox, or any dangerous, infectious, or contagious disease, or any child living in any house in which any such disease exists or has recently existed, to attend any school without a permit from the board of health. The board of education practically indorses this action. Yet cases of mumps, purulent ophthalmia, ringworm of the scalp, diphtheria, measles, etc., find their way into schools and spread contagion, either because these conditions are not recognized by parents, principals, or teachers, or the gravity of them is not appreciated by them. The city ordinances order teachers and managers of all schools not to "omit or neglect any duty or reasonable care or precaution respecting the safety or health of any scholar, pupil, or attendant, or respecting the temperature, ventilation, or cleanliness, or strength of any school-house, school-room, or place of practice or exercise, or relative to anything appurtenant thereto, as that by reason of such neglect or omission the health of any person shall suffer or incur any

avoidable peril or detriment." To make principals and teachers responsible for the sanitary welfare of pupils to such a degree as this ordinance indicates is hardly fair, when sanitary education is no part of the education of our school instructors. But such education is, to a certain extent, necessary if sanitary inspection of schools is to be successful, for the inspector needs the co-operation not only of school committeemen, but of the principals and teachers; and appreciation of the dangers of unsanitary conditions can only come from an intelligent study of these dangers. They are not to be guessed at. A sanitary *esprit du corps* in our schools will largely prevent the accumulation of foul air, which is responsible for many headaches, much listlessness and fatigue, and the lowering of vital force, which last condition is so often the very first step in the onset of disease. It will keep a watchful eye upon the cleanliness of the room, the closets, and the pupils; will direct as to proper food and exercise, so that recreation and not dissipation will result. The sick-list of pupils will grow smaller and the teachers will last as teachers longer than they do now, the average school life of a teacher being about seven years only.

(2) Inadequate arrangement of schools and school appliances may be briefly considered together. Dr. Hartwell, director of physical training, Boston, in his report for 1893 rightly dwells on the importance of giving especial attention to pupils individually. He shows that up to the eighth year of life the child is imitative, inquisitive, and acquisitive, and that sensory education is to be diversified and motor education should be general and elementary; that from the ninth to the seventeenth year is a period of rapid growth, followed by exhaustion, a period of self-consciousness, of development of motor co-ordination. It is a period when unnecessary worry, marked excitement, excessive muscular exertion, and under-feeding may stunt mental and physical development. Too much home work, cramming for examinations, the daily carrying to and from school of heavy books, insufficient light, desks too high or too low, text-books with poor type, are some of the defects which are a part of the school life of cities, and which can be remedied. Dr. Hartwell states in his report that "competent experts in surgery, ophthalmology, and hygiene have shown that the customary systems of school seating and the conventional methods of teaching penmanship are largely responsible for much of the impaired vision and spinal curvature

found among school children." This statement is as true of Boston as of other cities. The inadequate arrangement of schools and school appliances and the methods of school-work are closely allied as to their effects. Let the school-room be cheerful, well-lighted and ventilated, and with well-arranged desks and other appliances, and the teacher and pupils respond to the environments and do better work, willingly and with a minimum of wear and tear. On the other hand, orderly methods of school-work, and not beyond the health and strength of pupils and teachers, will demand better accommodations.

The subject of school hygiene is a large one, and is not limited to the study of the sanitary condition of school buildings as some members of school boards have supposed. But it includes the personal hygiene of pupils and teachers and the hygiene of studies and methods of work. I have not attempted to cover this hygienic field. I could not if I would in a single paper. What I do wish to emphasize is,—

(1) That school hygiene is a public question, which concerns nearly 100,000 children in this city, and 2000 teachers, and indirectly the families of these pupils and teachers.

(2) It is a question which intimately concerns the medical practitioners of this city, the natural conservators of the public health.

(3) That the careful study of this question, as of certain other public questions, for example, the water-supply and the noises of a city, belongs to our medical societies, and that these societies should from time to time give the results of their examinations and deliberations to the public through the health committee of our board of education.

(4) That the indorsement by medical societies of the efforts of the board of education to improve the sanitary condition of our schools would meet the approval of tax-payers and insure an adequate amount of money to meet sanitary requirements.

(5) That boards of education, changed as they are from time to time and composed as they are of men from the various walks of life, cannot be expected to grasp the subject of school hygiene in its fulness as medical men can and should.

Why cannot communicable diseases be shut out from our schools? Why cannot principals and teachers be taught to recognize these in their early stages, when children are coming to school? Why cannot vaccination be so thoroughly carried out in

our schools as designed by the State law as to almost prevent the onset of small-pox? Why cannot school-houses be so arranged as to supply only thirty pupils to a teacher? Why cannot each child have at least 250 cubic feet of air-space and 15 square feet of floor-space, and have at least 1800 cubic feet of air to breathe per hour, and why should not the air be brought from a considerable height, and in winter be suitably warmed and mixed with moisture before it is breathed? Why cannot there be ample and well-shaded play-grounds? Why cannot the walls of school-rooms be painted of a color agreeable to the eyesight, and text-books provided with type that will not try the eyes? Why should not the air in school-rooms be fresh and clean and sweet? Why should damp and dirty outer clothing be kept in a school-room or in badly-ventilated closets? Why should closets be used as class-rooms? Why should not desks and seats fit the child? Why should drinking cups be dirty? Why should the temperature of a school-room in winter be less than 65° F.? Why should there not be an abundance of natural light in a school-room, and why should there not be blinds to the windows exposed to much sun-heat? Why should not children be encouraged to bring suitable luncheons to school and to take ample time for meals, and why could not, in certain schools, food be furnished at a reasonable price? Why cannot the eyesight and hearing of children be tested? Much misery and injustice results where near-sightedness and defective hearing are not recognized. Why cannot the excellent system of physical exercise in our schools be supplemented in certain schools by a modified form of military drill? Why should children be made to carry a pile of books upon the arm to and from school?

To quote from Dr. Eliza Mosher's article on the "Habitual Postures of School Children," "This practice of carrying a pile of books to and from school is harmful in its tendency, for several reasons. It confines one arm, preventing its easy swing in walking, an important element in equalizing the circulation of the blood. It unbalances the body, making necessary a shifting of the parts, to restore equilibrium, thus placing the trunk in an unsymmetrical position. Most individuals, adults as well as children, acquire the habit of using one arm more than the other in carrying books, bags, etc. That the habitual weighting of the same side tends to produce deformity is shown in the figure of the man who has carried a pack on one shoulder continuously."

Why should children have so much home-work as to seriously

interfere with the time which should be used for out-door play? Why should children be kept in school after school hours for a considerable time without an adequate reason and to the deprivation of out-door exercise? Why should not the kindergarten be the method of teaching in all the lower primary classes? Why should so many bright young teachers be worn out after a few years of service in our public schools? These are a few of the many pertinent inquiries which arise when we study the needs of school hygiene in its relations to the public schools in large cities. Finally, why are we so slow in this country in furnishing satisfactory answers to these questions as compared with other countries, Germany, for example?

The Health of the Children in the Schools.¹

BY CHARLES N. HEWITT, M.D.,

Secretary of the State Board of Health of Minnesota.



LARGE edition of the first memorandum on this subject has been distributed, and there is a call for another on the part of a few county and city superintendents, and individual teachers. Some of the local Boards of Health are awakening to the advantage of the aid of teachers in dealing with infectious disease.

It is a curious fact that there is no class more difficult to reach effectually for this purpose than teachers. It seems to be the common impression among those governing State and denominational schools that their co-operation is a purely voluntary one to be determined by their own ideas of its need. To such and to hesitating local Boards of Health doubtful of their right to demand this co-operation, the following excerpts from Chapter 132, Laws 1883, are submitted :

“Sec. 23. That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health, who he shall have reason to think requires the attention of the local Board (of Health), to at once report the facts to the Board in regard to the disease, condition, and dwelling-place or position of such sick person.

“Sec. 24. That no person shall within the limits of any town, city or village within this State, without a permit from the local or State Board of

¹ Issued by authority of the State Board of Health of Minnesota.

Health, carry or remove from one (1) building to another, or from a vessel to the shore, or any railway cars, any person sick of any contagious disease, or the body of any person having died of contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect to the care and custody thereof, or by a needless exposure of himself, cause, or contribute to or promote the spread of disease from any such person or from any dead body.

"Sec. 25. That every person being the parent or guardian, or having the care, custody or control, or any minor or other person, shall, to the extent of any means, power or authority of said parent, guardian or other person, that could properly be used or exerted for such purpose, cause and procure such minor or person under control to be so promptly, frequently, and effectively vaccinated that such minor or individual should not take, or be liable to take, the small-pox.

"Sec. 26. That no principal, superintendent or teacher of any school, and no parent, master, or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small-pox, or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school, until the Board of Health of the town, village, borough, or city shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection, or any contagious disease."

TABLE SHOWING MORTALITY BY SPECIFIED CAUSES AT ALL AGES, AND AT THE SCHOOL-GOING AGES.—AVERAGES OF FIVE YEARS (1887-91).

ANNUAL AVERAGE OF 5 YEARS.	Average Annual Mortality of all Ages.	Average Annual Mortality 5 to 10 Years.	Average Annual Mortality 10 to 15 Years.	Average Annual Mortality 15 to 20 Years.	Average Annual Mortality 5 to 20 Years.	Per Cent. of Mortality at School-Going Age to Total Deaths from same Causes at all Ages.	Per Cent. of Deaths from Specified Causes to Total Deaths from all Causes between 5 and 20 Years.
Deaths from all Causes, at ages, 14,408. Deaths from all Causes between 5 and 20 Years, 1647.—11.22 Per Cent.							
Tuberculosis	1393	28	42	131	201	14.5	12.2
Diphtheria and Croup	1041	321	112	39	472	45.3	28.6
Pneumonia	846	43	20	36	99	11.7	6.0
Typhoid Fever	581	32	40	89	161	27.7	9.8
Bronchitis	339	9	2	4	15	4.4	.92
Scarlatina	210	53	11	5	69	32.8	4.2
Measles	170	16	8	10	34	20.0	2.07
Total	4580	502	236	313	1051	22.9	63.8

This table is founded upon a careful compilation of the returns of the last five years, and relates to the diseases which have caused the greatest mortality at all ages, and more in detail, at the school-going age, the last divided into quinquennial periods. It brings out the fact that the danger of death by infectious disease as a whole, and by each leading affection of the class, is largely affected by the age of the victim, and therefore will be found to vary in schools of different grades, suggesting increased vigilance on the part of teachers. The first column of the table gives you an average of the eight diseases which cause the greatest mortality at all ages. In order of mortality—at all ages—tuberculosis leads and diphtheria is a close second, the others following in the order given, but between 5 and 20 years of age the mortality of diphtheria is double that of tuberculosis.

It is the mortality at the school-going age which concerns us now, and the most striking fact brought out by the table is that the diphtheria is six times as fatal as any other disease in the first class (children from 5 to 10 years of age); more than twice as fatal as any other in the second class (10 to 15 years); but not one-third as fatal as tuberculosis in the third class (15 to 20 years), and not half as fatal as enteric (typhoid) fever in the same class.

To state the facts in a professional way, teachers of primary schools should be on the look-out for diphtheria, as 41.58 per cent. of all cases at all ages occur between the ages of 5 and 19 years, while in the last class (15 to 20) but 3 per cent. of all deaths from this cause occur. These deaths at the school-going ages together are 45.3 per cent. of the total mortality of all ages from this cause.

Scarlet fever, though far behind, comes next in fatality among the first class, and pneumonia and bronchitis together cause the same mortality among them as scarlet fever.

It is worth your while to note, too, that the mortality from diphtheria at the school-going age is 45.4 per cent. of the total mortality of that disease at all ages, enteric (typhoid) fever 27.7 per cent., scarlet fever 32.8 per cent., measles 20 per cent., bronchitis and pneumonia 16.1 per cent. Other facts of value will be found in the table, but enough has been made to appear to prove the duty of the teacher in the attempt to diminish or prevent the spread of infectious disease.

But how? In this way: Apply to your local Board of

Health, or directly to the Secretary of the State Board, at Red Wing, for copies of the memoranda upon diphtheria, enteric (typhoid) fever, scarlatina, measles, and the disposal of excreta, and read them all, but particularly the one which discusses the disease which happens to be prevailing, if any. They will be found to contain about all the information you need ; should anything be lacking, write directly to the Secretary, as above, who will give you a prompt reply. You will find that for prevention it is convenient to study diphtheria, scarlet fever, and measles together, because they agree in being infectious in the secretions of the nose and mouth, and all but diphtheria in the eruption of the skin.

Inquire frequently of the local Board of Health, and ask its executive officer to keep you informed of the presence of infectious disease. In country districts and small towns it sometimes happens that you will learn of sickness in the families of your children before the Local Board ; in such cases give the health officer, or the party acting as such, the name, residence, and reported disease, that he may investigate. Should there be any difficulty in finding the proper officer or any lack of attention to reasonable requests, apply directly to the secretary, at Red Wing, who will put you on the way to hearty co-operation. *In writing to him always give the name of village, city or township, and specify just what you want.* In the great majority of cases you will find every disposition on the part of your Local Board to help you, and thanks for your assistance.

But it is not in emergency that your most effectual work can be done for your pupils and your own good health ; it is rather in the every-day routine of the school life that your service as the health officer of a school is most useful. If you will come to understand this and its importance, you will never pass an hour in school without a beneficent use of your art. Children more than adults need abundant and fresh air ; I use the word "fresh" advisedly, because air may be chemically pure and yet be unfit to breathe. It is, you know, a mechanical mixture of gases, of which all are essential, and the mixture is one made "in the open," a natural result of an infinite variety of forces under the supreme law whose work we do not fully understand. To get an idea of the difference between natural and artificial air, imagine one made in the laboratory by the most skilful chemist and compare it with that which comes "from out of doors ;" they might correspond chemi-

cally, but physically and in that chemistry which stands close to the processes we call life they would differ so widely that practical use for breathing would condemn the one and instinctively demand and use the other. Now, in houses, we are utterly unable to secure the quantity or quality of fresh air supplied in the open, difference is not only great but essential, and never to be lost sight of. "Perfect ventilation by artificial means" is impossible, and tolerable ventilation is the best you can expect with your utmost care in the school-house. Another fact, the suspended matter in the air has much to do with its healthfulness, more than is suspected. Remember that the specific poisons of diphtheria, scarlet fever, whooping-cough, measles, small-pox, typhus, and infectious diseases are breathed floating in the air, the most common method of their distribution. There are other matters, causes of danger to health, which reach us in the same way.

Consider for a moment what they are. Many of the "odors" of the school-room are not removable by such ventilation as you can secure, or the "ventilating engineer" supply. For present purpose it will be sufficient to divide these "smells" called together "foul air" into three classes: (1) Those in breath from lungs and air-passages of teachers and scholars; (2) those from their bodies and underclothing; (3) those from their outer clothing which includes that of head, body, and feet.

I venture nothing in stating that, in general, the first, so far as aerial danger is concerned, is the least dangerous of all; that the second is the most dangerous, and the third, as a rule, less than the first. It is well to be reminded that it is not the "odor" but the "dying" or "special" character of the organic matter contributed as above which is dangerous when "suspended" in the air of respiration. Its *special* character, if it have any, is due to the special virus of some communicable disease. "Dying" organic matter in suspension in air, and from living bodies, when in constant excess was called by the old doctors "civic miasm," and had much to do with the origin and spread of "jail" or typhus fever, so fatal in Howard's time. Now, in smaller amounts in the air of inhabited places its influence is to clog physical activity, dampen mental vigor, and predispose to the attacks of disease. This is not the place for details which the iterated and reiterated experience of every faithful teacher will supply.

To control these dangers, begin with teacher and scholars before

they enter the school-room, and provide that they shall come there always reasonably clean in person and clothing, for so far as they are concerned this is a *sine qua non* if the ventilating powers of any available air-space are not to be tested beyond capacity.

Next provide that the school-room be itself clean, have sufficient air-space, proper arrangements to change the air, proper lighting and heating, with suitable furniture. Add to these limited occupancy, pure water-supply, with suitable out-houses, and you have the material which a competent teacher may use to very great advantage in securing a reasonable air-supply for himself and his pupils.

Taking the one-room village, and country school-house for illustration: the school-room for 30 scholars (all that one teacher should be required to instruct) should be 45 x 30 x 12 feet. This gives 45 square feet of floor-space to each child with 540 cubic feet of air-space. Windows should have together about 250 sup. feet in area, and if not possible on both sides, then on the left. The floors should be of sound and well-seasoned wood, smooth and well made, and thoroughly saturated with hot, boiled linseed oil. The same rule for the wainscot. The walls should be of hard finish and kept sweet and clean by quick-lime wash, as often as every term. Furniture to be movable, and when of wood, treated as the floor. Windows to have movable sash, and interior sectional blinds of wood or linen on frames, which last should be made like mosquito bars and in three sections. There should be ample arrangement for cleaning and storing foot-gear outside the school-room, and outer clothing should be provided for in cloak-rooms.

The regulation of ventilation in winter, late fall, and spring is the real problem in our climate; the summer should offer no difficulty. Warming is best done by the hooded stove with available outside air-supply, and ventilation by the raised lower sash, a common and good method if properly used. Relying upon any apparatus and oversight of that alone for pure air-supply will meet but moderate success under the best conditions, if the school board or teacher neglect the facts as to disease-prevalence here stated, or omit to insist upon the observance of cleanliness of person, clothing, school-room, and furniture, with their respectful use, that should be demanded in the interest of pupil and public alike for the common good.

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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The Physical Aspect of Mentality.

THE healthy, sturdy, sound seed will not only produce the healthy, sturdy, sound plant, but the flowers that bloom thereon will give forth a superior fragrance.

So, also, does it seem to us that the healthy, sturdy, sound parents, who live in accord with nature, will not only reproduce healthy, sturdy, sound children, so far as the visible body is concerned, but that also the invisible fragrance, or aroma, or emanations; the mentality of such children will be of a superior order.

It seems to us a mistake to speak of the physical and mental aspects of humanity as two separate, separable, and distinct attributes of humanity.

The stomach makes gastric juice; the liver makes bile; the brain makes thought,—this is our way of looking at it. The stomach is incited to its function by an impression from without, by the introduction of food, and a healthy, well-ordered stomach will do with this food just that which will redound to the best interests of the individual and of the community at large.

The brain is incited to its function by impressions from without, received through the senses of hearing, sight, smell, taste, and touch, and a healthy, well-ordered, and well-nourished brain will respond to these incentives in the way best calculated to serve the interests of the individual and of the community. The stomach receives food, digests it, and makes blood; the brain

receives impressions, digests them, and makes thought. An exhausted, worn-out, or diseased stomach cannot make good blood, neither can an exhausted, worn-out, or diseased brain make good thought.

Are not the functions of the stomach and the brain very much alike in their mechanism ; then why speak of the former as *physical*, as something gross and comprehensible, and of the latter as *mental*, as something *spirituelle*, mysterious, and incomprehensible : is not mentality really physical ? is it not merely one of the bodily functions, allied to and governed by the same laws as the rest ? Does not the quality of mentality depend upon the integrity of the brain ; the quality of blood, or nourishment, furnished to it, and the nature of the impressions that cause or produce mental actions ; just as much as the character of the blood depends upon the integrity of the stomach, the quality of food furnished to it, and the surroundings or accessories that accompany the function of digestion ? Will not the same influences that modify and qualify digestion also modify and qualify mentality ? Is not, therefore, mentality as much physical as digestion ? do not mental influences modify and control digestion ? Of course they do. Well, then, call digestion an act of mentality, if you please, but do not draw the great line that is usually drawn between the function and products of the brain and the functions and products of the other organs of the body. This is but a new dress for the old saying, "*Mens sana in corpore sano*," but it may serve to impress the fact that the brain is but an organ of the body, and that mentality, in its varied aspects, is but the product of this organ, and that the good and evil influences that affect the body elsewhere will equally affect the brain and mentality. Mustard and pepper and alcohol may *temporarily* stimulate digestion, and they will do the same with mentality ; we all know that they will ultimately ruin the stomach, and we should know that they will do likewise with mentality. We cannot separate the functions of the brain from the functions of the other organs ; that which will conserve the one will preserve the others, and *vice versa*, and the sooner we come to a full realization of this fact the better.

Physicians declare that the spotted veils as present affected by ladies are making the oculists rich, so much do they injure the sight.

Vegetable and Animal Vitality.

ALL thoughtful persons are ever ready to admit the existence of a natural code ; the existence of natural laws to govern and regulate every phenomena of nature ; nothing happens by chance ; everything that occurs does so as the direct or indirect result of definite and immutable laws.

Nature makes the laws and the thoughtful human being interprets them ; to the man who contemplates, Nature makes quite plain the rules and regulations that she has ordained for the guidance of everything and the ultimate accomplishment of her designs.

Any infraction of these laws brings an inevitable penalty in one shape or another ; these laws differ from the laws of man in that they are, so to speak, *automatic* in their action ; that the penalty provided for an infraction of human law may become operative, the intervention of humanity is necessary, and human ingenuity can very often avert the penalty that the crime has merited. Not so with natural laws ; here we have a sort of automatic, "penny-in-the-slot machine : " commit the crime and the penalty is the certain result thereof ; more certain than with any human machine, because the automatic machinery of natural vengeance cannot get out of order, and no amount of human ingenuity will enable the criminal to avert, or escape from, the penalty which his own folly or perversity has made imperative.

"Ignorance of the law is no excuse" for its infraction, says the human judge ; every good citizen must familiarize himself with the laws of his country and obey them, else he will suffer ; so, also, says Dame Nature, "Ignorance of natural laws will not, *cannot*, be accepted as an excuse for their infringement, even though I were full of pity and sorrow and commiseration, not even then could I accept this excuse, because I cannot change the automatic working of these laws : commit the crime and the penalty *must* follow, and no power can change this natural mechanism." If humanity would but grasp this thought in its entirety, reflect thereon, and act in accordance therewith, the results, both physically and spiritually, would be most beneficent.

Having directed attention to these immutable laws of Nature and suggesting that these laws will be very evident to one who cares to interpret them, let us reflect for a moment upon one that seems particularly applicable to the season that is now upon us.

Ridiculous as it may seem, until reflected upon, there is a great similarity between animal and vegetable vitality. Birth, growth, development, reproduction, constant integration, disintegration, and reintegration of organic molecules, the momentary cessation of vitality in the atomic or molecular constituents, the momentary endowment with vitality of other molecules or atoms, and the ultimate cessation of vitality in the organism as a whole are all characteristics of every animal and of every plant. The visible seed contains the possibilities of vegetable life that are evolved therefrom in accordance with natural laws; the invisible seed contains the possibilities of animal life that are developed under similar conditions.

The same organic elements that form the vegetable or the flower form also the mosquito or the man. The organized animal and the organized vegetable are but incidents or periods or visible, tangible, ponderable incidents in the never-ceasing cycle of organic matter. Now for Nature's lesson.

In warm weather vegetable life works and grows and reproduces; in cold weather it lies dormant, storing up strength for its next season of activity. Reasoning by analogy, it seems to us that Nature indicates that the period of activity for vegetable should be the period of dormancy for animal life. It is true that the ingenuity of man can force vegetable activity at the improper season, but it is done only at the expense of the vitality and quality of the vegetable so forced; so also can man force animal activity in hot weather, but he does so to the detriment of the physical welfare of the animal so forced.

The practical application of this lesson is that the busy, hurrying, worrying, fretful, fitful, uneasy, restless, almost nerveless American business man and society woman should cultivate the faculty of "*loafing*" during the hot weather.

It is true that the instincts of many incline them to this course; but it is equally true that those who are so instinctively inclined are not, as a rule, those who most require the "*loaf*." It is the great magnate chained to his desk by fetters of gold who should cultivate the loafing habit, and he it is whom the dog-days find hard at work.

Oh! if human beings would only realize what they really are, what they exist for, and why they exist at all; and what a delightful pleasure life is to those who know how to live; they would shut up the old books, lock the office-door, and dreamily idle away the hot days of summer; they would "*loaf*."



Sanitation the Test.

The model modern city is not the city with the largest number of inhabitants, but the city with the amplest and best sanitary apparatus conducive to the health and physical welfare of its people.—*Architecture and Building*.

Diphtheria.

One of the French journals (*Revue d'Hygiene*) protests against the too early termination of the period of isolation of persons who have had diphtheria. Two instances are narrated in which children with diphtheria were treated in a hospital, the one eight days, the other twelve days, and after a most complete disinfection of clothing and effects, returned home, apparently entirely recovered, only to give the disease to other children in their homes.

Board of Health and Personal Rights.

There is no doubt that before long many cases will come before the courts in which the question of personal and private rights as against the interference of boards of health will be raised. Compulsory vaccination, for example, is being gradually extended so that not only school children, but factory employes, clerks, and even opera troupes are visited by the health officials with needles and vaccine. The law, as we understand it, does not directly compel vaccination, but forbids attendance at school, and even employment in large factories, unless the individuals have been properly protected against small-pox. At the present time, some of the factory employes object to the operation for fear it may make them sick so that they will lose their work. It seems to us that the time has come when the statutes regarding vaccination should be more definite and explicit. Either vaccination is a safeguard or it is not. If it is, as we believe, then there is no reason why it should not be generally and directly enforced.

More important questions, perhaps, arise in connection with

the abatement of nuisances. And here the law has been recently interpreted in the case of the People *vs.* The Board of Health of Yonkers. The Court of Appeals has decided in effect that boards of health have the right to abate a nuisance, but the individual, on the other hand, has the right to have a trial as to whether the nuisance really is such. If it be decided that it is not, the board of health is found to be mistaken, the citizen is protected, and he has the right to receive compensation for damages inflicted.

In some cases the State voluntarily furnishes compensation for injury inflicted upon property, and this is often most wise and just.—*Medical Record.*

Sunshine.

For a long time we have known that habitations deprived of a sufficiency of sunlight by shade trees or otherwise are unhealthful and predispose the dwellers in them to consumption (says the *Sanitary Inspector*). Nevertheless, it is interesting and helpful to know the why of it; which is answered, in part at least, by a knowledge of the fact that investigators have found that the vitality of the germ of tuberculosis is rapidly destroyed by direct sunshine.

Healthful Exercises.

An eminent physician has said that if the following three movements are executed vigorously every day for twenty minutes the effect in a year's time will be very apparent. Before going down to breakfast open wide the window and for ten minutes go through the following exercises: First, stand perfectly straight, with heels together, and inflate the lungs with the pure morning air, drawing in the breath while fifteen is being counted and expelling it in the same way. Repeat this eight or ten times. Then bring the arms forward at full length, with the palms together, and then throw them vigorously back, trying to touch the backs. At first it will seem impossible, but after a few days' practice it can be done.

Do this from twenty-five to fifty times, then raise the arms above the head to the utmost, with the palms outward, and then lean slowly forward, keeping the knees perfectly straight, and try to touch the ground with the fingers. This, too, requires practice at first, but can be done after a while. Then raise the arms grad-

ually to the first position, and repeat the movement twenty-five to fifty times. At night go through the same movements. This simple little exercise, if persisted in, will prove to be of incalculable benefit, and restore young people to perfect health when medicine has failed to bring about the desired result.

Child-Life.

One of the interesting features of the World's Fair of 1900, in Paris, is to be an international exhibition of child-life under differing social conditions, from the earliest times to the present. All kinds of homes, mothers and nurses, play-houses and toys will form a part of the display, and children in the kindergarten, in factories, on farms, and in the streets will be a part of the great series of living pictures. The amusements of boys and girls of all countries will also be represented.

To Avoid Transporting Infection.

Answer to an Attending Physician.—Accepting the view as undoubtedly correct that the greatest danger of transporting the infection of scarlet fever and diphtheria comes from contact with the patient or with things which have been infected by him, the following rules for avoiding the danger of transporting contagion may be formulated :

(1) Before entering the sick-room protect your clothing by slipping on outside of your suit a long linen or cotton blouse buttoned closely its whole length. Its sleeves should extend beyond those of the under coat, and should be brought closely about the wrists with an elastic or otherwise. It should also button closely around the neck. These linen covers cost but little, and several of them should be kept on hand for use while visiting infectious cases. After leaving the infected house this protective covering should be removed, rolled up, and carefully put into a bag of the same washable material. The coat is preferably disinfected by boiling it without removing it from the bag. If the linen coat is not available, a rubber coat may be worn instead. A light cap should also be worn, which should also go into the bag for disinfection.

(2) After leaving the infectious rooms, corrosive sublimate

tablets or corrosive sublimate in fine powder should be at hand with which to make a solution of the strength of 1 to 1000, for disinfecting the hands and shampooing or sponging the hair and beard.

(3) Infectious cases should be visited after other patients have been seen, so far as this is practicable.

(4) Further precautionary measures to be carried out so far as practicable and called for in each case will be suggested to the mind of each medical attendant.—*Sanitary Inspector.*

His House was Worn Out.

During the last hours of Daniel Webster, Mr. Adams called on him, and seeing his desperate condition, and wishing to cheer him as much as possible, he remarked to the dying statesman, "Good-morning, Mr. Webster; I hope you are doing well." Mr. Webster's eloquent though sad reply was, "Mr. Adams, I am sorry to say that I am not. I feel that I am the tenant of a house sadly racked and shaken by the storms of time. The roof leaks, the windows rattle, the doors creak on their hinges, until my mansion seems almost uninhabitable. But the saddest part of the situation, sir, is that I have received word that the landlord positively refuses to make any further repairs."

The Laws of Health.

The true secret of health and long life lies in very simple things.

Court the fresh air day and night. "Oh, if you knew what was in the air!"

Sleep and rest abundantly. Sleep is nature's benediction. "Work like a man; but don't be worked to death."

Avoid passion and excitement. A moment's anger may be fatal.

Associate with healthy people. Health is contagious as well as disease.

Don't carry the whole world on your shoulders, far less the universe. Trust the Eternal.

Never despair. "Lost hope is a fatal disease."—*Chicago Medical Times.*

Filth.

Talking about filth reminds us (says the *Medical Examiner*) that, while passing by one of those street buttermilk-vendors so numerous in the down-town districts, we saw a fine-looking gentleman drying his lips industriously upon a towel, none too clean, which hung by the side of the vehicle. Old fellow, we thought, if you ever come before an insurance examiner with the marks of Cain upon you and a denial of exposure, you can in all probability credit your condition to one of those buttermilk or lager beer towels which you are accustomed to use in order to save your handkerchief, which was made to use, and not alone to carry. Better have two handkerchiefs, "One for a shower, and one for a blower," as the saying is.

Too much Starchy Food.

Dr. Holbrook asks, in the *Journal of Hygiene*, if we do not eat too much starchy food. He replies that he thinks we do. Starch is not a food that enters into the structure of the body. It is a source of supply of heat and energy the same as fat and sugar, and is very important to those who do much physical labor. We take a great amount of it in our potatoes, in our breads and farinacea, in rice, in our desserts made of corn-starch, tapioca, sago, etc. These modern preparations for desserts have become altogether too common. We might dispense with them altogether, eat potatoes less frequently, unless we work hard out of doors, when as a source of heat and energy they can be tolerated in large quantities. Dr. Holbrook would substitute nuts for all starchy preparations taken at the end of the meal. Nuts must be thoroughly masticated before they can be swallowed. They are dry and stimulate the flow of saliva, and this going into the stomach keeps back for some time its acidity, and so the digestion of starch can go on for thirty or forty minutes, indeed, so much longer time than it otherwise would. Epicures have long known that nuts at the end of a heavy meal actually promote digestion. Those who overeat often take them for this purpose. The reason is plain. They produce a copious flow of saliva, and this going into the stomach at just the right time helps to digest the starch before the gastric juice has been secreted. Then, in addition, many nuts are highly nitrogenous, and nitrogenous food is often taken in too small quantities.

Cleanly Servants.

The *Medical Examiner* reminds us that an almost universal defect in residential architecture is the omission to provide a bath for servants. The imperative requirement of the housewife is that her domestics shall be clean and tidy. How is it possible for them to be with a total absence of all facilities for cleanliness? Why do servants' rooms emit a peculiar odor which is not found in any other part of the house? My lady would be horrified if her own room were in the same condition. The labor of the house especially produces profuse perspiration. This with the naturally oily substance of the body, unless removed, becomes rancid, and with other uncleanly conditions must, in the nature of things, produce in time an accumulation of causes, which becomes anything but pleasant. Give them bathing facilities by all means.

The Comparative Mortality of Man and Woman.

Although woman has been deprived of so many rights and privileges, she has at least the advantage of man as regard longevity; she suffers less from accidents, injuries, and many forms of disease; she is in fact more tenacious than man of the limited enjoyments allowed her.

Dr. Brandreth Symonds has collected and studied a large number of statistics to illustrate this interesting fact (*American Journal of the Medical Sciences*). The comparative mortality of the sexes at different ages, shows that in the first year of life the mortality of the female is much less than that of the male, being at birth 92.64 per 1000 as against 112.80, and at the end of the year, 31.88 as against 35.08. This difference continues up to the fourth year.

From five to twelve the female mortality is greater than that of the male, being at the latter period 3.56 for males and 4.28 for females. At the age of 46 the male mortality equals that of the female, the latter having been up to this time slightly in excess. During the years 46 to 56, the period of the climacteric, the male mortality gains rapidly on the female, being 6.32 per annum for the one and only 3.47 for the other. Hence the climacteric is really a much more serious time for man than for woman. After 56, the female mortality gains on that of the male, but is always slightly below it. Woman has not only a less mortality and a

greater longevity than man, but there is, according to Dr. Symonds, a plurality of female births, though the contrary view is usually held. Nature seems determined to keep up a full supply of women, a condition which, it is suggested, may be the result of the polygamous habits of primæval man.—*Medical Record*.

The Manner of Eating—Rest after Meals.

There are a great many people who suffer from indigestion from youth to old age, and oftentimes never discover the real cause of their trouble. Hurried eating of meals, followed immediately by some employment that occupies the whole attention and takes up all or nearly all of the physical energies is sure to result in dyspepsia in some form or another. Sometimes it shows itself in excessive irritability. This is almost a sure indication that nerve force has been exhausted. It is not Nature's rule to do two things at a time,—the stomach cannot digest a dinner while the brain is at work at the same time. All know that when a force is divided it is weakened. If the meal were eaten slowly, without preoccupation of the mind, and the stomach allowed at least half an hour's chance to get its work well undertaken before the nervous force is turned in another direction, patients suffering from dyspepsia would be comparatively few. The old saying, "It does not matter what you eat, but how you eat it," has more truth than poetry in it. While the quality and quantity of foods have much to do with the health, the manner of eating, and the habit of not giving Nature sufficient time to do her work, has quite as much, if not more, to do with keeping up the tone of the system to a natural, healthful point. All meals should be followed by a short rest, but especially dinner. In the morning, when the physical and nervous forces are in their greatest vigor, the stomach can proceed with its functions if the breakfast is immediately followed by moderate employment; but it is hardly wise. A short rest will keep the tone of the body better during the day, and it is always best to be on the safe side. After supper there should be no work, but recreation. The bodily vigor is at its lowest ebb, and should not be further taxed. Other faculties and muscles should then be called into action, and nature assisted to recuperate her exhausted forces by pleasurable occupation and rest.—*Charlotte Medical Journal*.

Rapid Eating.

There is a prevalent idea that slow eating is very favorable to digestion, but this is largely fallacious. The important point is not that we eat slowly or fast, but that when we do eat we chew with energy. Of course, where the haste is due to some mental anxiety, this may injuriously inhibit the secretions. Slow eating begets a habit of simply mumbling the food without really masticating it, whilst the hurried eater is inclined to swallow his food before proper mastication. Hence, hurried eating is bad, but rapid mastication is advantageous. It concentrates our energies on the act in question, and hence more thoroughly accomplishes it. Moreover, energetic chewing stimulates the secretion of saliva in the most favorable manner. These various points are so commonly misunderstood, at least by the laity, that they demand our frequent attention.—*Journal of Mental and Nervous Disease.*

Late Suppers.

The old tradition that to eat anything just before going to bed was sure to produce indigestion and render sleep impossible, is now happily exploded. It is not good, as a matter of fact, to go to bed with the stomach so loaded that the undigested food will render one restless, but something of a light, palatable nature in the stomach is one of the best aids to quietude and rest in bed. The process of digestion goes on in sleep with as much regularity as when one is taking violent exercise to aid it, and so something in the stomach is a very desirable condition for the night's rest. Some physicians have declared, indeed, that a good deal of the prevalent insomnia is the result of an unconscious craving of the stomach for food in persons who have been unduly frightened by the opinion that they must not eat before going to bed, or who have, like many nervous women, been keeping themselves in a state of semi-starvation.

Nothing is more agreeable on retiring for the night than to take a bowl of hot broth, like oatmeal gruel or clam soup. It is a positive aid to nervous people, and induces peaceful slumbers.

This is especially the case of cold winter nights, when the stomach craves warmth as much as any other part of the body. Even a glass of hot milk is grateful to the palate on such occasions, but a light, well-cooked gruel is better, and in our climate, during the cold months of winter, should be the retiring food of every woman who feels, as many do, the need of food at night.—*New York Tribune.*

What to do when Children Swallow Hurtful Things.

When the substance swallowed is caustic or irritating to the mouth and stomach, the first thing to do is, of course, to produce free vomiting, or if vomiting has been produced by the poison itself, to give lukewarm water, which, being vomited, will wash out the stomach. If the nature of the poisonous substance is not known, or if the mother cannot think of an antidote, it is best to give as quickly as possible drinks which will soothe and protect the walls of the stomach from the irritating action of the poison. The handiest drink of all, and one of the best, too, is milk or cream. Sweet oil and linseed oil are also good. Raw eggs, beaten up, are both oily and soothing. Flax-seed tea, barley-water, and ice-water at the temperature of the room are pleasant to the irritated throat.

In certain cases we may give antidotes, even before administering emetics, as some of these poisons are extremely quick in their fatal action upon the body.

Phosphorus-poisoning differs from all other forms, since in its treatment oils are positively harmful. After vomiting is secured the best antidote is a large quantity of calcined magnesia (the common magnesia or "Husband's magnesia," which is kept in the nursery as a gentle aperient for babies) mixed with water. Then flax-seed tea or barley-water may be given. Phosphorus-poisoning may result from eating match-heads. The writer recollects one case in which a child was poisoned by eating cake which had been carried in the pocket with a lot of matches.

If the poison taken is opium, laudanum or morphia, which produce deep stupor, the patient must be kept awake by every means until the doctor comes; strong coffee and tea, grounds and all, being freely given.—*Babyhood*.

Taking Castor Oil.

Most people are aware that castor oil is one of the most useful and harmless of the medicines used in domestic practice.

Undoubtedly, it would be more generally used, did it not taste so bad. A simple and easy way, all things considered, as we have found, is to give the patient a strong peppermint or winter-green lozenge to chew up rapidly. The strong flavor partly paralyzes

the sense of taste, which rebels against the castor-oil flavor. The oil should be promptly swallowed from a spoon before the taste of the peppermint begins to vanish, and another bit of the candy immediately chewed almost convinces the little patient that castor oil is not so bad, after all.

Other ways of making oil pleasant to take have been devised. Probably the most agreeable way to administer the oil is in an emulsion, and a formula for producing one is as follows :

Castor oil	1 ounce.
Yolk of egg	1.
Syrup	2 drachms.
Tincture of orange peel	1 drachm.
Water, to make	3 ounces.

Rub the yolk up in a mortar, adding the oil by degrees ; if occasionally too thick, thin with a little water. Then add the syrup, following with the tincture, and, finally, enough water to make the quantity.

Another mixture in which acacia is the emulsifying agent may be made in accordance with the following :

Castor oil	1½ ounces.
Powdered gum arabic	2 drachms.
Sugar	2 drachms.
Peppermint-water	4 ounces.

Triturate the sugar and gum arabic, adding the oil gradually; when thoroughly incorporated add the peppermint-water in small portions, triturating the mixture until emulsified.

It has also been stated that hot milk affords a vehicle which does away with the unpleasant taste of the oil to a certain extent.

A Wonderful Swimmer.

Australia has a wonderful swimmer who will make a sensation when he visits this country. Walter Gormly is his name, and his capacity may be best gathered from a glance at his records. These are: 100 yards in 1.02 $\frac{2}{5}$; 300 yards, 3.59; one mile, 27.03 $\frac{1}{2}$. He is quite as fast at long as at short distances, and if his future development keep pace with that of the past, he will be a phenomenon. Gormly's physique is like that of an ordinary man, but he has good chest, shoulders, and leg develop-

ment. He is passionately fond of swimming, and spends most of his time at the Sydney natatorium knocking off lap after lap. He rigidly adheres to his self-imposed training restrictions, and his work is play for him, as he thoroughly enjoys the water.

Most amazing, indeed, is his style of propelling himself through the water. He swims on the right side, and in drawing his legs back for a stroke sends the top one clear above the water, bringing it down with a loud splash. This peculiar motion is not considered much of a check on his speed, but it certainly does not contribute to it. Some experts who have studied him claim it does retard him a little.

Games and Gymnastics.

There is no doubt that children enjoy games rather more than gymnastics, and if there is nothing better than play to develop the child's physical frame, he will naturally seek this way of providing for the need. But it is apt to be the favorite game that is constantly played; the good runner runs all day, the one who excels in throwing or catching ball is willing to continue until exhausted, and only those muscles are exercised which have already become over-developed as related to the others. A child never stops to consider if he be warm or cold, and often plays on until weak from excessive perspiration. There are no games which bring the body into certain positions known to be of great worth in gymnastics. Of course, there is no such thing as progression or arrangement of movement in ordinary play. Granting that a child may grow tall, strong, and healthy from much outdoor play, there is little question that he will be stronger, better proportioned, and in more perfect health through continued, well-planned, and regulated gymnastic exercise. On the other hand, too much exercise is vastly worse than too much play, for in the former case the bad effects are insidious, while in the latter Nature asserts herself before serious harm is done.

The influence on the mind is perhaps better from exercise than from play, for a steady concentrated effort is being made to accomplish a definite result, and the mind helps the muscles. In play, too often the impulses are vague and erratic, and if originally there is an idea the attention is apt to be diverted from it.

When children take Swedish gymnastics they enjoy making the effort to do what they are told without the slightest idea of

the reason for their action. It is interesting for them to try to stretch their arms and legs in certain positions without troubling themselves to know if it be to affect the chest or the shoulder-blades. The adult who realizes for what purpose he is putting himself into those positions and who is eagerly watching for the beginning of the desired effects, finds the exercises doubly interesting. It would seem that for adults there should be fewer games and more gymnastics. Being without the suppleness and recuperative powers of the child, they need the tonic which is the result of properly graded exercise. The idea of competition which is strongly developed in games is excellent for quickening the senses and the nervous energy, but this state too long continued retards the body from receiving the benefits of the exercise. An over-excited nervous condition is more likely to result in harm than good.

So while we may give pupils gymnastics entirely to the exclusion of games with good effect on their bodily development, it is certain that games practised constantly without the soothing effects from suitable gymnastic exercise will be decidedly harmful. Gymnastics train inhibition and the expectant attention, games the non-expectant attention, hence the latter are most useful in preparing one to act quickly in case of emergency and to train the judgment, while gymnastics prepare one to think calmly, intelligently, and philosophically with steady purpose, the whole body being in conscious harmony with the mind.

To accomplish an equal and harmonious development, it is necessary that the following points be observed :

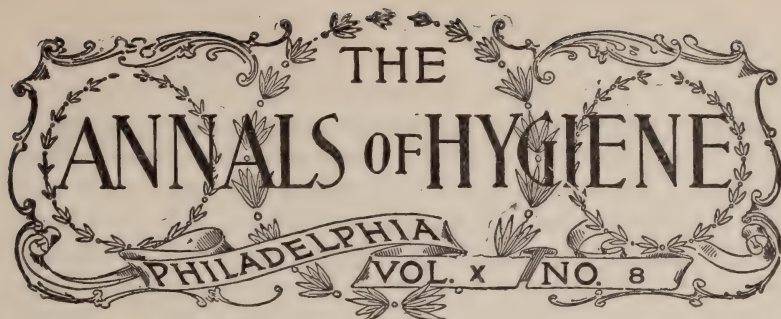
All gymnastic exercises should be devised with a due regard to the structure and functions of the body, and should therefore be founded on an accurate knowledge of anatomy and physiology.

Every exercise should have a definite aim, and be localized so that its action be understood.

Every part of the body should be exercised in turn, and having due regard to physiological functions, not any one part in excess of another.

Harmony of function, including suppleness, should be regarded as of equal importance with the mere development of muscular power.

All exercise, while directed to the development of strength, should be kept well within the vital capacity of the individual.—*Posse Gymnasium, in Popular Health Magazine.*



COMMUNICATIONS.

The Importance of Protecting the Stomach and Intestines from Pathogenic Germs.¹

BY BOARDMAN REED, M.D.,

Atlantic City, N. J.

THE members of the committee that did me the honor to invite me to deliver this address were well aware that I have no gifts of oratory with which to entertain you. They know me as a busy physician, quite unused to public speaking. It must be assumed, therefore, that all they expected of me was to give you in plain fashion some of the lessons of my experience at the bedside and with chronic invalids, so many of whom go to recuperate in the climate of Atlantic City.

My remarks will be addressed to nurses who have had the best of instruction in much that pertains to the science of medicine, as well as in the beneficent art of caring for the sick. You are presumably ladies of intelligence and good general education, for such only I am sure could meet the requirements for graduation in the New Jersey Training-School for Nurses. With such an equipment you will have no difficulty in following me in a brief discussion of a practical hygienic subject,—one which involves lessons of the deepest importance to all who value the blessings of health and long life.

Very much might be appropriately said, to the more recent

¹ The Annual Address delivered before the New Jersey Training-School for Nurses at Camden, N. J., May 31, 1895.

graduates at least, about the nobility as well as the arduousness of the profession you have entered upon, and the imperative need that, in order to attain success in it and achieve the utmost possible usefulness in it, you should be inspired by a conscientious and earnest desire to do good to your fellow-man and fellow-woman,—somewhat of the enthusiasm and self-sacrificing spirit which sends missionaries to labor in heathen climes, or the scientist to toil unceasingly in search of new forms of microscopic life. But you have, no doubt, heard all this before, and in more eloquent words than are at my command.

Instead, I shall ask you to listen to a cursory talk on hygiene, and especially on the importance of protecting the stomach and intestines from disease-producing germs; or, in a more technical phrase, a sepsis of the alimentary tract.

This is a subject which not only has to do intimately with the preservation of your own health and physical capacity for sustained work, but also with the proper care of your patients.

Next, after physicians themselves, there are no persons to whom an intimate practical knowledge of hygiene is more vitally important than to nurses. They are often left for weeks or months at a time in charge of patients who are away from their physicians on journeys or sojourning at resorts and unwilling to consult a strange medical man except for some serious emergency. In such cases it often devolves upon them to look after the diet and assume temporarily the entire responsibility as to other important details of the treatment; and, even when an invalid is receiving regular visits from the medical attendant, the instructions given to the nurse in charge are sometimes so vague or incomplete that very much is left to her own judgment and discretion.

How often, for instance, do doctors think of giving directions about the care of the mouth and naso-pharyngeal cavities from which, when unhealthy, millions of germs may find their way daily into the stomach and intestines? How often, again, the busy doctor forgets to insist upon a proper amount of ventilation and light in the sick-room as well as upon frequent spongings of the body, or hesitates to oppose the rooted prejudices of the patient and friends in favor of dungeon-like closeness, darkness, and dirt? And yet pure air, sunlight, and water are pre-eminently the greatest of the remedies which nature has given us for the cure of disease.

For one I am free to confess in all humility and contrition that in the past I have frequently been guilty of these omissions, but have resolved to do better in the future. In the absence of directions regarding such matters, it is the privilege and the duty of the nurse to attend to all the hygienic needs of her patient.

But you, as nurses, need to know well the laws of hygiene in order to take the proper care of yourselves. You must necessarily at times overtax your brains, nerves, and muscles, to say nothing of the strain upon your tempers, besides being exposed often to the worst contagions, and meanwhile obliged to do with insufficient sleep.

All this you may undergo without great risk so long as you are able to maintain a good digestion. While the liver and gastric and intestinal glands continue to secrete healthfully and you are careful to eat and drink rationally, not forgetting to furnish your lungs with an ample supply of uncontaminated air both day and night, you will be measurably safe not only against such contagions as that of tuberculosis, for instance, but also against the danger of nervous exhaustion. But with a broken-down stomach the case is altogether different. Then dangers threaten on every hand. For some time past I have carefully examined the stomach in nearly all the cases of chronic disease that have come under my care, and have rarely found this organ normal in the more serious maladies, including especially consumption, nervous prostration, and most chronic or stubborn forms of insomnia.

The majority of gastro-intestinal diseases are either produced or perpetuated by certain forms of bacteria. The important question then arises, How can we prevent the infection of the stomach and intestines by pathogenic germs with the resulting fermentation and putrefaction of food and the development of inflammatory processes which, when allowed to go on unchecked, end by disastrously undermining the general health?

The answer ranges itself under the following three heads:

(1) By keeping the mouth and neighboring cavities clean.

How necessary this is, may be inferred from the following incident:

While I was at work recently with Professor Turck, in his Clinic on Diseases of the Stomach, in Chicago, we placed under the microscope a tiny speck of the incrustation so often seen along the margin of the gums. It was shown to be swarming with colonies of bacilli, or rod-shaped microbes. Then, by an

ingenious revolving sound, invented by Turck, a little mucus was obtained from catarrhal stomach walls of the same patient, and in it were found large numbers of the same bacilli. Twenty-eight different forms of bacteria have been discovered so far in the human mouth, many of them capable of becoming virulent under certain conditions.

In the nasal passages and naso-pharynx there are many others, a number of which have been carefully studied microscopically by Dr. D. Bradin Kyle, of Philadelphia.

In this connection it is noteworthy that I have seldom met with a case of gastric catarrh of sufficient obstinacy to require washing out of the stomach without finding a co-existing nose and throat catarrh, which usually has long antedated the gastric affection. Hence the importance of curing such catarrhs in their early stages. When by long neglect they have become next to incurable, as sometimes happens, an antiseptic gargle or spray should be used several times daily to prevent the infection of the stomach. For the same reason the teeth and gums should be brushed thoroughly at least once daily, and preferably before breakfast.

(2) By seeing to it that the food and drink are as free from bacteria as possible.

This is a requirement the importance of which can scarcely be over-estimated. If even the water we drink were always sterilized by thorough boiling, a large share of the disease which now afflicts and decimates mankind would be wholly prevented. This precaution is very necessary in cities where the drinking water is obtained from rivers which are usually polluted. It is doubly necessary in the country where the water so generally comes from old wells placed nearly always in such proximity to dwellings and out-houses as to be almost unavoidably contaminated with sewage, and often with the germs of typhoid and scarlet fever, diphtheria, etc.

Foods are less apt to be the bearers of toxic materials or virulent bacteria, especially when recently cooked; but meats are frequently kept until tainted, which is another way of saying that decomposition has begun in them with the rapid multiplication of harmful germs. Fish—and especially the shell-fish—speedily undergo putrefaction at the ordinary temperature of living-rooms, and still more rapidly in the presence of unusual heat. It is safer also to have milk and even butter sterilized, since both may contain the bacilli of tuberculosis, besides other forms of bacteria.

Even our dishes and cooking utensils, when imperfectly cleansed or washed in contaminated water, may convey disease-germs into the system. In many other ways, too numerous for consideration or even a passing mention in this address, we are all liable to be endangered through the ingestion of disease-producing microbes along with our natural aliment.

(3) By maintaining a healthy condition of the defences by which nature always attempts to protect the vital organs from the invasion of hostile germs.

A full consideration of this requirement would carry us through the entire domain of personal and public hygiene; but only a hasty glimpse can be given here at a few of the more salient points. To begin with, we should avoid indigestible articles of food as well as an excess of stimulants or condiments (many hygienists would say avoid all stimulants and condiments) which irritate and wear out prematurely the secreting glands. It is scarcely less important to avoid eating at irregular times and amounts of even wholesome food which are far beyond the needs of the body or beyond the power of the appropriate organs to digest and assimilate.

The abuse of powerful medicines, especially the quack nostrums of the day, so freely prescribed for themselves and friends by many thoughtless persons—as well as other forms of drug tippling—are among the most common methods by which the vitality of the stomach is so crippled and impaired that disease-germs readily get the upper hand in the battle ever being waged by them with the defensive cells and antiseptic fluids of the body.

Turck, in some recent experiments, endeavored to infect the stomachs of dogs with certain bacteria, but failed. Then instruments were introduced into the stomach, and purposely so manipulated as to produce abrasions upon the mucous membrane. Still the enemy was not suffered to obtain a foothold. The abrasions rapidly healed, and the leucocytes, or out-wandering cells, abundantly supplied by a healthful circulation of nominally rich blood, promptly put to route the invaders. Not till after he had poisoned the gastric mucous membrane by administering frequent large doses of active drugs, such as tannic acid, was he able to accomplish his object and infect the stomachs of the dogs. These experiments of the brilliant investigator teach an obvious lesson to hygienists, and one which should not be wholly lost upon therapeutists.

It would be an endless task to attempt to enumerate all the ways—all the unhygienic practices, the various dissipations, follies, and excesses, whether in work or play—by which it is possible to so impair the nerves and blood supplied to the stomach as to render ineffectual the barriers erected there by an all-wise Providence against the inroads of disease-germs.

Men, as a rule, are doubtless more guilty than women of sins against the stomach as they are of most sins against the decalogue, but our fair sisters may claim pre-eminence in one noteworthy hygienic error which is fraught with serious consequences, not only to their stomachs, but to nearly all their abdominal and pelvic organs. This is the injurious constriction of their waists by tight clothing. I shall not waste time with any new discussion of this hackneyed and apparently threadbare theme, but for numerous recent trustworthy observations by stomach specialists and abdominal surgeons as to the lamentable and far-reaching effects of the displacement of organs caused by the corset.

Kellogg, of the Battle Creek Sanitarium, has in various articles forcibly described and graphically pictured these disastrous results of tight lacing.

In a large number of physical examinations of the abdomen made by myself, of which records have been kept, the stomachs of a majority of all the women were found to be abnormal as to size or location or both. In many of them the livers and kidneys also were displaced downward. In the cases in which some part of the stomach, usually the pyloric end, had been pushed down as far as the navel or below it, the transverse colon was necessarily dislocated from its normal position, a condition which results nearly always in constipation and dilatation of the intestines with excessive flatulency, and a host of nervous derangements depending upon the absorption into the blood of poisonous gases.

Between the stomach and the brain the closest sympathy exists. Neither can be diseased without at least a disturbance of function in the other. Prolonged loss of sleep will notably depress the digestive processes, and, conversely, impaired digestion is nearly always reflected in the lessened capacity of the sufferer for natural, refreshing sleep. Very high livers who dine sumptuously every day are those who are most frequently afflicted with insomnia. In many a modern abode of luxury there is re-echoed in less poetic phrase the pathetic complaint of King Henry IV,—

“How many thousand of my poorest subjects
Are at this hour asleep! O sleep! O gentle sleep!
Nature’s soft nurse, how have I frightened thee,
That thou no more wilt weigh my eyelids down,
And steep my senses in forgetfulness?”

You cannot fail to be familiar with this increasing and all too frequent malady, insomnia. Your more luxurious patients nearly all suffer from it at times as a result usually of diseased stomachs and livers due to faulty diet and want of exercise. You yourselves are very liable to become the victims of it for less avoidable reasons. Your hours for eating and sleeping cannot always be as regular as they should be, and indigestion is the penalty ever paid sooner or later for such irregularities. Indeed, you may find the inability to sleep even when the opportunity is afforded, and “nature’s sweet restorer” is sadly needed, one of the first indications that your stomach is giving out, though usually it is not until after the nerve tone has been considerably lowered, is that the sleep becomes seriously impaired. If you should begin to experience difficulty in wooing the drowsy god, do not be too ready to seek relief in those delusive aids, the hypnotic drugs. Just as purgatives never cure constipation, so sleeping potions never cure insomnia. Rather apply to your physician and let him seek out and remove the cause which, in nine cases out of ten, will be some fault in the organs of digestion and assimilation.

Garbage Cremation.

EVANSTON, ILL.

Editor of the ANNALS OF HYGIENE, Philadelphia, Pa.

DEAR SIR:



WE are investigating the subject of garbage disposal for the city, and find it difficult to obtain information on this subject, and will be very glad if you are able to tell me where I may find accurate information concerning this subject. Most of the crematories of which I know anything are in the way of an experiment. I understand that in England there have been some burners constructed which were not very expensive, either in construction or maintenance, and have proved highly satisfactory. Unfortunately, I have not the names of these places.

If you can give me any information which will assist in this matter, I will be very much obliged.

Very respectfully yours,

E. P. CLAPP, M.D.,
Commissioner of Health.

We referred Dr. Clapp's letter to Dr. M. D. Youngman, a member of the Board of Health of Atlantic City, N. J., where we knew that a garbage crematory was in successful operation. Dr. Youngman's concise reply gives a very satisfactory answer to the question.

ATLANTIC CITY, N. J., July 6, 1895.

MY DEAR DR. EDWARDS:

Your note accompanying Dr. Clapp's communication is to-day received.

I note your request for a concise report of the experience of the board of health of this city in seeking a process for the disposal of garbage and a description of the process finally adopted.

I take pleasure in furnishing this information for your correspondent, as I believe Atlantic City has to-day the most effective and satisfactory process for garbage disposal in the country.

The whole subject is still *sub judice*, and *all* existing plants are experiments, but I think our plant comes nearer to a solution than any other.

Two years ago the sanitary disposal of kitchen garbage and other refuse, and dead animals, became in consequence of the phenomenal growth of Atlantic City a matter of much concern in the estimation of our local health board, of which I have the honor to be a member.

The city had just completed a sewerage system of lead-jointed iron pipes, which for perfection was without rival. It had also secured a water-supply, which for quality and abundance left nothing to be desired, and the sanitary disposal of the garbage was deemed the most vital question remaining for solution. And it was felt that as Atlantic City was rapidly taking rank as the foremost health resort of the country, the system adopted should be as nearly perfect as it was possible to attain.

With this end in view the board devoted nearly a year investigating the various processes of utilization and cremation, and several processes combining these two. In the pursuit of this knowledge a number of places were visited, New York, Boston, Chicago, Cincinnati, Providence, R. I., Washington, D. C., Wilmington, Del., Pittsburg, Pa., Wheeling, W. Va., Muncie, Ind., Lowell, Mass., etc., and the following plants were inspected, investigated, or considered, and their various claims, merits, and objections were carefully estimated and decided upon:

The Simonin Utilization Process. The Frensil Evaporating Pan. The "United States" Utilization Process. The Engel Furnace. The American Incinerating Company's Plant. The Vi. Vartis Process. The "Brown Crematory." The Rider Furnace for the Destruction of Garbage. The Process of the Oxy-Hydrogen Light and Heat Company. The M. V. Smith Garbage Crematory, and several others of minor importance.

The first result reached by all this investigation was to decide unanimously in favor of cremation—as against any utilization process, either complete or partial, as being more economical, more sanitary, more free from objectionable odors, and much more easily managed.

The next result was to select the "M. V. B. Smith" Crematory, in operation with natural gas at Muncie, Ind., and modify and adapt it for our needs, and by using producer gas.

Such a crematory was completed June 1, 1894, having an estimated capacity of fifty tons *per diem*, and since that date the fires have been constantly burning, destroying from forty to seventy-five tons of animal and vegetable waste per day.

A detail of the *modus operandi* of this furnace would take up too much of your space, and the furnace and its workings will be gladly shown to any one who may wish to inspect it, and a description of its construction with cuts may be found in the "Eighteenth Report of the Board of Health of the State of New Jersey," from the pen of H. S. Scull, Esq., Secretary of the Atlantic City Board of Health.

This crematory, which we considered in the light of an experiment, proved so satisfactory that at the end of one year from its erection another of eighty tons *per diem* capacity was erected and went into blast on June 1, 1895.

These furnaces were built by the Board of Health of Atlantic City. They are the result of much care, thought, and enthusiastic interest on the part of the members of the board collectively and individually. And while they have imperfections, they are in the estimation of this board the best plant in the country for the work required.

The fifty-ton-per-day furnace can be built for \$9000 *complete*, and the larger one for \$12,000.

The cost of operation for the year past is as follows :

Thirty cents per net ton of garbage.

This comprises *all* expenses, and is made up partly of the wages of three men at \$45 per month (for the two furnaces), and one and a half tons of gas coal *per diem*, for which we pay thirty-five cents per gross ton at the mines (Westmoreland), and on which we pay \$2.40 per ton freight.

The outlay for repairs for the first year was less than \$50, and we believe the life of the crematory to be twenty years.

So complete is the combustion that less than 1 per cent. of ash is received, and this is used for filling lots below established grade. There is absolutely no odor, and no smoke, not even the escape of ammonia fumes from the stack.

The crematory is built in the centre of the town. These furnaces have water-tight bottoms, and the garbage is delivered to and dumped directly into them from steel sanitary carts designed by this board, each cart carrying 3000 pounds.

It was found for the smaller furnace (fifty tons) that up to forty tons *per diem* the water contained in the garbage was completely consumed, but over that amount it was necessary to "bleed" the carts before their contents were dumped in the furnace.

The amount of garbage collected in Atlantic City during the summer season is very large, reaching on some days 200 tons per day.

Any further information will be most gladly furnished by Mr. H. S. Scull, Secretary, Atlantic City, N. J.

Respectfully,

M. D. YOUNGMAN, M.D.

A System of Athletics Without "Training."

BY HENRY BORST, M.D.,

Chicago, Ill.

"Mens sana in corpore sano."



HAVE read with great interest the article on "Athletics—Health" in the June ANNALS OF HYGIENE, being an interview with Professor Edwin Checkley and comments thereon by the editor.

I have nothing to add to Professor Checkley's arraignment of modern athletics as usually practised for attaining excellence or superiority in some particular line or some particular act only. But there is a system of athletics in this country that is but little known to English-speaking people, which aims simply and solely at the development of strength and maintenance of health, which is absolutely and entirely separated from professionalism, which does not endeavor to attain excellence for its devotees in any one particular exercise, and which is practised by all ages and both sexes, from little toddlers of 7 to sedate, sober *pater familias* of 50 and over. I refer to the German system of turning.

This was introduced in this country in 1848-49 by a liberal-spirited band of Germans, who left their Fatherland because they no longer wished to give up their heart's blood to settle some petty prince's quarrels.

ORGANIZATION.

The organization is known as the "Nord-Amerikanischer Turner Bund," or North-American Gymnastic Union. It comprises some 50,000 adult male members (18 years of age and over), who are all American citizens or have declared their intention to become such, with great numbers of auxiliary bodies, as "Turn-Schwestern,"—*i.e.*, turner-sisters or adult lady members, and boys' and girls' classes from 7 to 14 years of age and from 14 to 18. The boys from 14 to 18 are termed "Zöglinge," or pupils, and on arriving at the latter age may become members. The adults are subdivided into various sections. All may belong to the singers' section. Those from 18 to 28 or 30 years of age are all expected to be "active members,"—*i.e.*, take part in the

gymnastic exercises. Those above 28 or 30 (the rule varies in different local societies) are classed as "passive" members, and are excused from participation in gymnastics, but still they may form classes or sections, and are then known as "bears," probably on account of supposed or actual clumsiness, but their agility would surprise many of us, although some are gray-haired, and they enjoy the distinction of being called "polar bears."

The active members may belong to fencing sections, swimming sections, wrestling sections, and bicycling sections, but they do not tolerate or approve of boxing or foot-ball playing, the two modern brutalizing factors in athletics.

Another prominent feature of this organization is the fostering of mental gymnastics in the shape of debates upon social economy, government, tariff laws, practical reform, gymnastics, and public health. It is absolutely non-sectarian and non-political. Members may belong to a sick-benefit fund.

PRACTICAL GYMNASTICS.

The Turner Bund maintains a "Turn-Lehrer Seminar," or college for gymnastic instructors, at Milwaukee, where young men may for a nominal fee receive instruction in anatomy, physiology, hygiene, English, German, singing, and gymnastics, the latter including fencing, swimming, etc.

This instructor has charge of all gymnastic exercises and public exhibitions. Exercises take place *regularly twice a week* for all classes except during the hot summer months. The youngest children (7 to 14) are divided in subclasses (Riegen) according to age, size, and experience, and are taken through the simplest calisthenics, marching, balancing, swinging wooden dumb-bells, and breathing exercises. Time is kept by musical accompaniment wherever available.

As the children grow older, stronger, and more expert, the tasks are gradually increased in difficulty and complexity. Light iron dumb-bells are used by the boys, and gradually feats are attempted in connection with various apparatus, but never to the extent of overtaxing the strength or endurance. Each subclass, say of six to ten members, is under the immediate supervision of an assistant, who in the absence of the instructor or under his direction describes and demonstrates the particular movements, sees to it that they are properly executed, criticises, corrects faulty provisions, and watches out for the prevention

of accidents. In this way each pupil stands by, resting, while the others in his subclass go through the evolutions, except, of course, in the case of general exercises like marching, dumb-bell swinging, etc., in which all participate at the same time, but always allowing proper time for rest frequently.

THE ADULTS.

The subclass idea prevails among the adults as well. They exercise evenings about one and a half to two hours. The average programme is something like this (for say five subclasses):

8.15 P.M.—Form in line. Marching, free-hand exercises, light dumb-bells, Indian clubs, breathing exercises, or a five-minutes run.

8.25 P.M.—Rest.

8.30 P.M.—Subclass I, rope climbing.

“ II, broad jump.

“ III, horse.

“ IV, ladder.

“ V, vaulting horse.

9.15 P.M.—Subclass I, high jump.

“ II, parallel bars.

“ III, horizontal bar.

“ IV, dumb-bells, five to thirty pounds.

“ V, putting thirty-pound shot.

10.00 P.M.—Roll call. Singing.

Thus you will note that the classes change about. A record is kept, and the next evening subclass I will have broad jump and parallel bars, II will have horse, horizontal bars, etc. There is a continual change about, so that the *entire body* will be developed and strengthened. All are under the same regulations and discipline. None are permitted to come to the instructor and say, “Professor, I want exercise for my biceps,” or, “Professor, I want to train for a running match,” etc. In short, this system aims to develop *the whole man*.

* * * * *

Here, then, we have a system of athletics without training. We have all that is valuable without any of the brutalizing “sport,” without any of the one-sided *straining* and forcing. The central idea is the gaining and maintenance of *health*, not

the breaking of records, not the smashing of noses and blackening of eyes, not the premature wearing-out of this beautiful, pliable, intricate, wonderful house in which our spirit abides.

Here we have the prophylaxis and cure for that which may ultimately lead to America's downfall,—indigestion and neurasthenia. One-third of American-born women may be classed as nervous and dyspeptic. Another ray of hope I see at present is in the bicycle. Long may *she* ride.

Nothing can be accepted as valuable unless it can show results. The German system of turning points to rosy-cheeked lads and lassies, a sturdy, brainy, practical manhood, a healthy womanhood, and a ripe old age. It has gained for Germany superiority in science, excellence in art, and world-wide recognition. Turning, it was that fought and conquered the impetuous French.

In fancy I hear the snip of the editorial scissors and hasten to cut short lest I be cut short. In case the readers of the ANNALS desire to learn more about this organization, or to see some of its practical workings, or, perhaps, take part in its exercises (which any one, English or German, Jew or Gentile, may do without becoming members), or wish to send their children to enjoy its practical benefits, I will be pleased to publish the names and addresses of the various local societies which are scattered over this country from Maine to California and from New Orleans to Minneapolis, and the time and place of some of their field-days or tournaments.

This is merely a statement of fact for the benefit of humanity by an ardent adherent of the doctrines of "an ounce of prevention is better than a pound of cure," and "a sound mind in a sound body."

3300 STATE STREET, CHICAGO.

Nathaniel Hawthorne on "the Bible Oath."

The *Independent* thus refers to the unsanitary "kissing the book :—" "Any one who has acted as a witness in court and kissed the court Bible in taking the oath should understand the sanitary reasonableness of Pennsylvania's new law to dispense with the kissing. Nathaniel Hawthorne described the Bible he used for administering oaths to American waifs and strays who came to his consulate in Great Britain as 'greasy with perjuries.'"

The Physician and the Undertaker.

BY WM. N. ATTWOOD,

Philadelphia.

I HAVE been taking your valuable magazine for several years, and enjoyed keeping up with the history of sanitary science, as shown by the papers that are published in it each month. It is a great source of encouragement to see that people of all ranks are being educated to look to the causes of disease, and taught rather the means of prevention than to wait till the mischief is done and then call on their physician and Providence to help them out of the trouble.

As an undertaker and member of an undertakers' association, we have also tried to follow the teachings therein set forth.

It was then with a great deal of pleasure that I saw in your June number an article with this caption, "Precautions to be Taken by Physicians, Ministers, and Undertakers in Diphtheria and Scarlet Fever," by G. B. Spencer, health (?) officer, Weston, Ohio.

A foot-note states that it was read before the Ohio State Sanitary Convention.

In my own State, Pennsylvania, there have been a good many sanitary conventions held, and the importance of them to the public, enlarged upon by the newspapers, as a means of education, it may perhaps be different in Ohio, and such conventions held in that State are possibly open only to the medical profession. From the title of the article, however, I should have judged otherwise.

The four points enlarged upon—"accuracy of diagnosis, an adequate sense of the vastness of the evil germ of contagion when once loosened, a thorough knowledge of the value of sanitary regulations, and a due valuation of human life"—were clearly stated and explained, so that even an uninitiated layman could understand them and profit by the mistakes that had been made through ignorance or carelessness of those who had unwittingly, perhaps, aided in the spread of disease.

After all this, I was somewhat astonished and taken aback by the statement made with *emphasis*, that *all* the precaution

necessary to be taken by ministers and undertakers is to obey promptly and fully all the directions of the attending physician !

How about the mistakes in diagnosis? How as to the physicians who don't believe in the probability of carrying infection? They don't all have object-lessons in their own families to convince them.

We remember a case where we were called upon to bury a child in a very poor and ignorant family. The poor visitor, who called on us, said it was a case of diphtheria. We kept the body in an upper room, told the family that it must be buried the next day, and that the coffin must not be exposed.

What was our surprise, when we came for the funeral, to see the coffin open down-stairs and be told that the child had died of croup or tonsillitis, and the physician's certificate was produced to verify the statement.

It was only a mistake in diagnosis, but a week after, when we buried the next child, the family were only too anxious to have every precaution taken.

Now, we don't wish to claim for one moment a superiority or even an equality with the physician in determining the cause of death, but in view of the mistakes made, and so clearly shown in the article mentioned, it does savor too much of the old-time physician, who considered it an impertinence for a patient to ask for any information. All he had to do was to open his mouth and swallow ; if he was not cured, it was because his time had come to die ; if he was, the doctor cured him.

The veil of secrecy has been torn aside. In this nineteenth century there is nothing occult in medicine or any other science, and least of all in sanitary science, which I take it is peculiarly one for all the people, being the science of living, and one in which the best laid plans may be nullified by ignorance of the so-called laymen.

When the professionals recognize this and instruct the common people that you do thus and so because of the danger of spreading disease, and seek to make the knowledge of the germ theory popular, then will health laws be enforced, not because their violation entails penalties, but because it will be the violation of that great law of self-preservation in which each man and woman is interested.

We agree that it is right for the physician to look after the afflicted family and continue his efforts to stay the progress of the

fell destroyer ; but to dismiss the clergyman and undertaker, who have conscientiously desired to be instructed, with that (we can almost see it) supercilious smile and wave of the hand, as bowing he says, Do? Why, do precisely what the physician tells you. This, we must say, is not calculated to popularize sanitary science or sanitary magazines.

It may be thought that there is unnecessary heat in this and it is much ado about nothing, but it is the principle for which I am contending.

Your excellent journal has for years been teaching and preaching, for the general diffusion of knowledge, on the subject of health, the way to get it, and the way to keep it, and we know that the State Board of Health of Pennsylvania has done a good work in the same line.

What we believe, and what we have always insisted on, is that those whose duty calls them to posts of danger, danger not only for themselves but for all with whom they come in contact, should, whenever opportunity offers, be treated by health officers as having sufficient intelligence to understand and be given plain directions what to do, and *why* they should do it.

A minister or even an undertaker will often be listened to by an afflicted family with as much deference as they give to the physician who has not been successful in keeping death from the door, and it is a great mistake on the part of the health officer in village or city to let pass an opportunity for giving such information.

Municipal Mortality Statistics.¹

BY JOHN S. BILLINGS, M.D.,

Professor of Hygiene, University of Pennsylvania.



MUNICIPAL mortality statistics have a very considerable scientific interest and value, independent of their utility as a foundation for municipal hygiene. They are, as a rule, more complete and accurate than the mortality statistics of rural and thinly-settled districts, or of States and nations taken as a whole, and furnish some of the best data which we possess for studying cer-

¹ From the University Medical Magazine.

tain problems connected with sociology and political economy, as well as those relating to the causes of particular forms of disease.

By mortality statistics we mean the ratios of deaths occurring in any given group of population during one year, or for one year of life of that group, except in the case of very young infants, and we express these rates as being so much per 1000 or per 100,000 of population. $M = \frac{D}{P}$. To obtain the most useful and valuable

results from the study of death-rates, these must be properly comparable with each other. The factors which influence death-rates may be conveniently divided into two classes,—general and local. The most important general factors are the proportions of the different ages, sexes, and races in the population in which the deaths occurred; the local factors include what are generally called sanitary conditions, the incidence of epidemics, etc., and before we can properly estimate the nature and force of these local influences by comparisons of data from different localities, or from the same locality at different times, it is necessary to eliminate, as far as possible, differences due solely to variations in the general factors,—to secure a common denominator, as it were. Take, for example, the factor of age. As will be seen by Table I, the death-rate of children under five years of age is from seven to nine times as great as that of persons from fifteen to forty-five years of age, while after forty-five the death-rate is again much higher. The death-rate in any community or group of persons depends therefore very much upon the proportion of young children and of old persons in the population of that community or group. This influence of age is especially marked in the death-rates of certain diseases, as diphtheria, which is especially a disease of children, or of apoplexy or heart-disease, which pertain chiefly to persons over forty-five.

In like manner the influence of race, while not so great as that of age, is very considerable, even on the general death-rate, as will be seen from the figures given for the white and colored in Table I, and for different races of whites in Table II. It is not my purpose at this time to discuss the results of such comparisons, and they are alluded to merely to indicate their probable importance and interest.

The difficulties in the way of obtaining the data for making such comparisons are great, and it is to some of these difficulties that attention is now called. To calculate a death-rate, we must

know the number of deaths for a given period of time—say a year—and the average number of people for that year among whom these deaths occurred. If we wish to know the death-rate from consumption among whites from fifteen to forty-five years of age, we must know the number of deaths from this cause in this class, and the number of the class itself. It is much easier to obtain such information with regard to the number of deaths than it is with regard to the population, but if the classification is a minute one, it is usually impossible to obtain the data for either the deaths or for the population.

The form for the registration of a death used in our cities usually calls for information with regard to the age, sex, color, birthplace, and occupation of the deceased person, and for a statement of the date, place, and cause of the death, and whether the person was married, single, widowed, or divorced. In those cities which have the best form of registration, information is also asked as to the birthplace of the father and of the mother of the deceased person. This is specially important information for American cities at the present time, as it is the only way in which we can get a clue to the probable race, since the birthplace of the person does not afford such a clue, especially for persons under twenty-five years of age. Philadelphia, Baltimore, Chicago, St. Louis, New Orleans, Louisville, Allegheny, and many other of our principal cities (ten out of the twenty-eight over 100,000), do not require this item, and hence very little information as to the relations of race to different causes of death is to be obtained from the records of these cities. Even when the registration forms contain all the information we ask for, the results of their compilation are usually published in municipal reports in such a way as not to permit of their use in scientific discussions with regard to the different causes of death. Such published statistics, for example, will show the number of deaths due to each of certain causes of death in persons in each of certain age groups. They will also, perhaps, show the number of deaths from each cause in the white and colored, in the native and foreign born, in each month of the year, and the number of deaths of persons following each of a number of different occupations. They will not, however, show the number of deaths due to a certain disease, as, for example, consumption, in persons of Irish descent in each age group, nor will they show the number of deaths caused by consumption among carpenters, masons, shoemakers, etc., between

the ages of twenty-five and forty-five. When, however, such data are urgently wanted, the materials for compiling them may be in existence in the registration office in the form of the original returns for registration of death, and it is thus possible, at considerable expense and trouble, to obtain the information classified in the way one desires for the purpose of a particular research.

This, however, is not true as regards the population, which is always a matter of much greater uncertainty than the deaths, when one comes to deal with special limited groups for the purpose of preparing death-rates. As a rule, the population in our cities is obtained only once in ten years, with the distinctions of sex, age, color, birthplace, birthplaces of parents, conjugal condition, occupation, etc.,—that is, by the United States Census. In a few of the States, there is an intermediate census calling for the same data, so that in the cities in these States there is really a count of the population every five years. Except for a period of time in which the date of the census occurs in the middle of it, the population of a given city, or part of a city or of a particular group of population in the city, can only be a matter of estimate derived from certain mathematical calculations, into the details of which it is not necessary here to enter. No police census, school census, or any other form of census undertaken by a city ever enumerates the population with the distinctions of age, sex, color, etc., which are necessary for the calculation of special death-rates; and even as regards the gross population, such municipal censuses are very rarely sufficiently accurate to be relied upon in the calculation of death-rates, while for many of the subdivisions of population which are desirable for the calculation of special death-rates, the cities of the United States cannot obtain even approximate data for calculation from the published results of the United States or of the State Censuses. The United States Census will give for each city of over 25,000 inhabitants the number of its population, with distinctions of age, sex, color, native and foreign born, and of parentage, but for only a few cities will the distinction of birthplace of mother be given.

When we attempt to use the mortality statistics of cities for the investigation of the effects of local influences upon death-rates, and especially upon death-rates due to certain special forms of disease, we meet with still greater difficulties. In the first place, it is desirable to study the death-rates of a city not only as a whole, but also for certain parts of the city which present pecu-

liarities, the effects of which we desire to ascertain. If, for example, we desire to study the effects of density of population, or soil drainage, of poverty, or of sewerage upon death-rates, it is necessary to compare different parts of the same city from these points of view. As a rule, however, the subdivision of a city into wards or into police districts has no relation to the altitude, soil dampness, density or character of population, or to the character of the dwellings, of the several districts, and hence, the information derivable from ward death-rates, even if we could obtain them, is by no means definite and satisfactory as to the influence of the various circumstances upon mortality.

For scientific purposes, as well as for the purposes of practical hygiene, it is very desirable that the mortality statistics of a city should be compiled with reference to units of area, selected with regard to circumstances which may have an influence on the life of the inhabitants, and not solely for political considerations. In the Eleventh Census an attempt was made to do something in this direction, by establishing divisions in a few cities—namely, Boston, New York, Brooklyn, Philadelphia, Baltimore, and Washington—with reference to the points above referred to. For example, in New York, which is divided into twenty-four wards, 114 sanitary districts, as they were called, were thus created. The records of deaths in the city were copied for each individual, each death being credited to the sanitary district in which it occurred, as far as possible. Many of the deaths which occurred in hospitals, asylums, and other institutions could not properly be credited to the district in which such institutions were located, and, as far as possible, information was obtained as to the district from which the person dying in an institution had been sent to that place, and the death was then credited to that district, as being the locality in which the original disease or injury had occurred. The census data with regard to population were then compiled for each of these districts, with distinctions of age, sex, birthplaces of mothers, etc., and thus were obtained the factors necessary to calculate death-rates for each sanitary district. The results are in many respects of great value, both locally and from a scientific point of view, but, as stated above, it is not my purpose to discuss them here. Those who are interested in them will find them in the reports published by the census office.

I wish next to call attention to a special difficulty which pre-

sents itself when we attempt to use death-rates derived from the comparatively small number of people in a sanitary district for purposes of comparison and investigation into the influences which affect special causes of death. The smaller the factors used in calculating such ratios as death-rates, the greater, as is well known, is the amount of what is commonly called "probable error" in these ratios, by which is meant not so much the probable error as the possible error which may occur from the much greater influence which a comparatively small variation in a few of the individual data will have upon the results when the numbers concerned are small than when they are large. If we divide the population of a sanitary district into the various classes of sex, age, race, etc., which have been suggested as desirable, it may very well happen that in a district we shall find that there was one Frenchman between the age of 45 and 65 living in the district, as shown by the census, and that the death record shows that one Frenchman between the age of 45 and 65 died in that district during the preceding year, which would give, say, a mortality of 100 per cent. In the same district there may be two Hungarians of the same age group, and no deaths of Hungarians in that age group occurred during the year. This may be considered as an extreme instance, but it is one which has actually occurred several times, and it may readily be seen that we cannot properly draw the conclusion from such figures that the mortality of Frenchmen of this age in that district is 100 times greater than that of Hungarians of the same age. It has even occurred in the census figures that in a certain very small group of population, the number who died during the year was three or four times as great as the number left living at the end of the year, indicating a mortality of over 100 per cent. Special care must, therefore, be taken in studying statistics of this kind to take into consideration the magnitude of the figures forming the factors for each special death-rate, as well as the magnitude of the death-rate itself. It should be noted, however, that the probable or possible error connected with the magnitude of the number of years of life, which is used as the divisor to obtain the ratio which we call the death-rate, differs very considerably according to the manner in which those years of life have been reckoned. Fifty persons living for ten years, and 500 persons living for one year each give 500 years of life, but the average annual death-rate obtained for the first group, by dividing the

number of deaths which occurred in it during ten years by 500, will be more nearly a correct one than the one obtained for the group of 500, by using it as a divisor for the number of deaths which occurred in it during one year. If we can obtain the average death-rates of even a small sanitary district for a period of twenty years, the possible error due to the smallness of the numbers will, to a great extent, disappear, and they will be much more reliable as a measure of the tendency to death in that district than will be the death-rates of the whole city, of which it is a part, if taken for a single year.

The difficulties which a statistical officer of a city meets in attempting to prepare special rates of the kind referred to for different parts of the city have heretofore been so great in cities of this country as to be practically insurmountable. If his death records were properly kept and well looked after, it may be possible for him to classify the deaths by such sanitary districts as he may select, and by such further subdivisions of sex, age, etc., as he may think it desirable to use, but by no possibility could he obtain corresponding data for the population of these districts. For some cities the published records of the Tenth Census gave the gross population by wards. The Eleventh Census, as has been said, gives the population of a few cities by sanitary districts, but the characteristics of sanitary districts in a growing city are apt to change, and hence the health officer may desire to establish other boundaries than those which have been used for the census. But even supposing that a municipal statistician is satisfied to make use of the local subdivisions into sanitary districts employed by the census, he has no means at present of calculating the amount of change which has taken place in the several groups of population of a sanitary district since June 1, 1890, if, for example, he wishes to make his calculations for the year 1894. The means ordinarily made use of to calculate the population of a district or of a city at a period two or three years distant from the last census is the well-known geometrical progression formula, based on the ratios of increase or decrease of the population of the district or of the city which has been found to occur within the given time, by a comparison of the results of the last two censuses of the place. In the case of these sanitary districts, however, such a ratio cannot be accurately computed, because at present the results of but one census are available, and we can only apply the general ratio which may be computed

for the whole city to one of its sanitary districts, and errors may thus be introduced, because while the population of the city may, as a whole, be increasing considerably, the population in some districts in the business and crowded portion of the city may be actually decreasing, while a much greater than the average rate of increase is taking place in some of the more thinly-settled districts at the periphery, owing to increase in means of rapid transportation.

The only means, therefore, of obtaining accurate data with regard to the population of such sanitary districts for intermediate periods would be for the city to undertake to make a special census of them, or of some of them, for the use of the statistician or health officer of the place, but at present it is tolerably safe to say that there is no city in this country which would be willing to spend the money which would be necessary to accomplish this. It will, therefore, be necessary to wait until the next United States Census, in the hope that it will obtain the populations of these sanitary districts with the same classification and grouping as were used in the Eleventh Census, in order to afford data for the preparation of ratios for intermediate or for future years.

It is impossible to publish in full the data as to population or deaths which would be required for such a minute study of the mortality statistics of a large city as has been herein indicated as desirable. Let us suppose, for example, that a city is divided into twenty sanitary districts, and that in each of these districts the population is to be classified into twenty age groups of each of the two sexes of each of ten races. This would give a table showing 8000 places of figures, which would fill at least ten pages such as are contained in the quarto volumes of the census. If to this be added further subdivisions as to the conjugal condition and of the occupation of those 15 years of age and upwards, allowing four divisions for the conjugal condition and a classification of 100 occupations, we should have a further series which would occupy at least 400,000 places of figures. To tabulate the deaths in like manner, giving the particulars for each of 100 different causes of death in addition for each of the subdivisions, would require about 40,000,000 places of figures. Such subdivisions, or anything approaching them, are, of course, absolutely impossible, and would be useless. It is necessary to make a careful selection of those combinations of the different factors which seem most likely to have an influence upon the death-rates, and

then as far as possible to induce the statisticians of the different cities to compile and publish their mortality statistics in conformity with such classification.

In order to avoid the fallacies due to the use of small numbers, the medical statistician desires, in studying the relations of a certain disease to conditions of sex, age, race, occupation, etc., to combine the data furnished by the records of a considerable number of cities; but in attempting to do this he meets with great difficulties, because some of these data are either not obtained or not published in such a way as to be comparable. In some cities data as to race are not obtainable, even from the original records; in others, the items of occupation, conjugal condition, etc., are not required on the forms for registering a death, and even if place is made for them on the form, no attention may be given by the person in charge of the registration to seeing that they are properly filled out. If we take the ten cities referred to on Table I and desire to obtain from their records the death-rates of those who may properly be termed Americans of the professional class from diseases of the nervous system, with distinctions of sex, age, and conjugal condition, in order to compare these with similar statistics of those of Irish or German descent, we shall find that in only two or three of the cities are the necessary details complete enough for this purpose.

The State of Pennsylvania has no general system of registration of deaths, being in this respect the most backward of all the older Northern States. It contains a large number of cities, very few of which have complete registration records, and many of which have none.

In Philadelphia, Allentown, Altoona, Carlisle, Erie, Harrisburg, McKeesport, Reading, Scranton, Williamsport, and York the birthplaces of parents are not called for on the registration form. In Allentown, Harrisburg, and Carlisle no record is made of the birthplace of the decedent. In Carlisle neither conjugal condition nor occupation is recorded. In Philadelphia, Pittsburg, Allentown, Altoona, Erie, McKeesport, Norristown, Reading, Scranton, Titusville, Williamsport, and York the record of conjugal condition is for married or single only, no note being made of divorced, most of whom are probably returned as single. On the certificates used in Bradford, Pennsylvania, in 1890, there is a place on the stub of the certificate, which is to be returned by the physician, for the item of color, but no record of color

is made in the body of the certificate which he sends to the health office.

It would be easy to specify many divergencies of this kind, of greater or less importance, but I have said enough to indicate some of the difficulties which the statistician meets with at the present time in attempting to investigate mortality statistics in this country. It would require very little change in the form of certificate employed in our principal cities to enable it to furnish proper data, and thus afford the means of obtaining a uniform record of facts as a basis for scientific municipal mortality statistics.

TABLE I.

Municipal Death-Rates in 1890.

	White.	Colored.	Under 5.	15-45.	45 and Over.
New York	28.5	37.5	96.8	13.5	47.2
Chicago	21.0	23.3	69.9	8.9	30.9
Philadelphia	22.3	32.4	76.0	10.4	37.4
Brooklyn	25.4	35.0	86.0	11.3	41.5
St. Louis	18.2	34.6	56.9	9.2	32.4
Boston	24.6	33.3	87.2	12.2	40.9
Baltimore	22.6	36.4	93.0	10.0	37.6
Cincinnati	21.9	33.0	76.4	10.3	36.6
New Orleans	25.4	36.6	75.4	15.2	47.7
Washington, D. C.	19.8	38.2	97.8	12.0	34.1
Sum of 28 cities	22.8	33.6	78.0	10.7	

TABLE II.

Municipal Death-Rates in 1890—Whites.

	OF CHILDREN OF MOTHERS BORN IN				
	United States.	Ireland.	Germany.	France.	Italy.
New York	29.0	32.2	22.0	24.1	40.0
Brooklyn	26.0	27.8	21.6	14.9	30.8
Boston	21.0	28.4	18.6	17.6	24.8
Cincinnati	20.7	19.8	17.9	8.6	15.8
Washington	16.0	25.5	19.8	16.3	14.1
Sum of 18 cities	20.9	26.7	19.9	19.0	33.4

CONSUMPTION.

Death-Rates per 100,000 of Population of Corresponding Ages having Mothers born in the Specified Countries.

Color and Birthplaces of Mothers.	15 to 45 Years.	45 to 65 Years.	65 Years and Over (Ex. Unknown).
White	398.11	432.49	438.24
Colored	676.51	684.40	658.02
<i>Birthplaces of mothers.</i>			
United States (white) . .	228.49	240.26	252.26
England and Wales . . .	256.80	350.73	302.41
Ireland	630.45	651.09	753.07
Scotland	363.66	361.01	402.34
France	276.96	444.02	633.80
Germany	340.75	420.99	452.32
Canada	490.34	350.11	462.53
Scandinavia	406.06	497.22	597.01
Hungary	193.85	777.20	
Bohemia	730.47	680.79	
Italy	261.60	385.08	420.17
Other foreign countries . .	359.87	451.49	581.21

These figures are for the sum of Boston, Brooklyn, Cincinnati, New York City, the District of Columbia, and the State of New Jersey.

Sunstroke: Treatment, Cause, and Prevention.¹

BY SAMUEL WOLFE, A.M., M.D.,

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THE occurrence of unusually hot weather, so early in the season, suggests the advisability of refreshing on this subject. That the central nervous system is in forms of disorder, profoundly impressed, is certain. Whether the attack be of the syncopal, apoplectic, or thermic fever variety, this holds good.

Though not determined, in seat and nature, with the same exactness as is the case with some others, both experimental and clinical evidence point strongly to the existence of a thermic centre, the function of which is to maintain the body heat at the normal standard. This is fulfilled by influences exerted upon the circulatory and the excretory organs, including in the latter the respiratory system, as well as such others as are usually embraced in this term, but more especially the skin. This centre is most

¹ From Codex Medicus Philadelphæ, June, 1895.

probably located in the pons, since lesions here are constantly characterized by decided disturbances of temperature.

The close anatomical relation of the pneumogastric nucleus, which contains a respiratory and circulatory centre or centres, located in the medulla, with the pons, in which we assume that the thermic centre or centres lie, need only to be mentioned, while scarcely more is necessary than to call attention to the close physiological and pathological relations, so patent in all the phases of health and disease, of the functions of the lungs, heart, and skin. The part played by the vaso-motor nervous apparatus, in the exercise of all the functions of the body, must, however, be also remembered, and the fact that it is by this apparatus mainly that the vital heat is regulated.

In the syncopal variety of insolation, or what is often spoken of as heat prostration, with a feeble heart-beat, cold extremities, pale skin, shallow respiration, and a subnormal temperature, we may find cases extreme in degree, demanding the most vigorous methods of stimulation, combined with the greatest caution. The position of a man, who would kindle from a feeble spark smouldering in the ashes a bright and living fire, must be realized. Wild and excited blowing, and reckless and rude stirring, may extinguish the last vestige of hope, which prompt but cautious nursing might light by a few shavings, so that the kindling, and the block, and the brilliant coal might all follow in their turn, till the steady glow which could be left to the natural resources of the furnace be again established. The properties of artificial heat, mental and physical quiet, subdued light, alcoholic and other restorative drinks, ammonia, ether, digitalis, atropine, strychnine, nitro-glycerin, and caffeine should all be known, and such as are indicated employed. In the milder cases, rest and quiet in a cool place, with a hot-water bag to the feet, a sinapism to the epigastrium, and a glass of iced tea for drink, may be all-sufficient.

In the apoplectic variety we have more or less profound coma, with stertor, and probably convulsions. The temperature is above normal, but not alarmingly high. The pulse is usually accelerated, though it may be slow. The skin may be either hotter or cooler than normal. The danger lies in the congested condition of the brain and lungs, and the surest and speediest remedy is the lancet. Blood should be drawn until the breathing becomes easier, and the circulation more steady and less obstructed. The amount cannot be exactly prescribed, but must

be determined by the effect. It will most likely vary between eight and twenty ounces. Either hot or cold water (or ice) should be applied to the head, the low or high body temperature or heat or coldness of the skin being the guide. Warmth will probably be needed to the feet, and a hypodermic injection of ergot (twenty minims of ergotole) may be considered an adjuvant in diminishing the congestive tendencies. A rectal injection of one drachm of potassium bromide in four fluid ounces of water can also be made use of, if the more urgent measures seem to fail.

In the thermic fever proper, where the temperature may rise to 110° F. and above, no time dare be lost in cooling the body by whatever means can be commanded. Bucketfuls of cold water can be poured over the chest, abdomen, and extremities, while the head can be treated to a steady stream from the mouth of a pitcher. But better still is packing ice around the body, first of all into the axillæ and around the neck. If the patient is lying on a rubber blanket, shelved up at the edges, he will almost immediately, from the heat of the body, have under him a layer of ice water, while the ice is being shovelled in handfuls over him or while the parts are being rubbed with it. The shallow respiration will become deeper, and in the course of less than half an hour the temperature can be reduced by six to eight degrees. Ice-water enemata may also be used in connection with the ice externally. Here again powerful hypodermics, as mentioned above (digitaline, strychnine, atropine, and perhaps morphine), may be required, but again the writer would urge circumspection. In the excitement of the moment, the danger of overdosing is extremely great.

While sufficient exposure to heat, whether it be directly to the sun's rays or in a shaded, perhaps poorly ventilated, but superheated atmosphere, may bring on heat affections in any individual, it is yet undoubtedly true that certain conditions of the system powerfully predispose to them. Foremost among these, the writer would rate the occurrence of a previous attack. A person who has once suffered from a pronounced attack is not likely ever to recover fully the immunity which he had before enjoyed. This is due to some obscure permanent changes in the condition of the cerebro-spinal axis in many cases, while in a certain contingent there undoubtedly exist grosser changes of an inflammatory nature. In the latter class, however, there is a certain degree of chronic invalidism, including attacks of an epileptoid or hysteroid nature, which does not exist in the former.

The next greatest predisposing factor is alcoholism in any of its forms. While great care should always be exercised in hospitals, police-stations, and all institutions where individuals supposed to be drunk are received, so as not to overlook some more serious condition which may simulate drunkenness or co-exist with it, this caution becomes still more imperative in hot weather.

The fatigue induced by an insufficient amount of sleep, especially when there has been also operative, mental, or emotional strain, reduces greatly the power of resisting the evil effects of great heat. No one is more likely to have experienced the distress of either high or low atmospheric temperatures, with a more painful sense of their power, than the average busy physician, whose vocation, without leaving him any resource for defence, is constantly compelling him to work when both tired and sleepy.

The depression incident to exhausting diseases, even during the period of convalescence, to venereal excesses, to enervating habits of any kind, all have their etiological significance.

Prevention need not be enlarged upon; it can be inferred from the section on causation. The individual who exercises anything like rational care against exposing himself to great heat for a long time need not fear to pursue his vocation, even somewhat arduously, if he observes throughout, both in winter and summer, such a course as keeps him in a good average state of health. Provided, of course, that the dress should be suited to the season; that the drink and diet should be such as would naturally suggest itself to a healthy palate; that the labor be not excessive, nor the rest and sleep deficient; and that the intellect be not overtaxed, nor the feelings too severely burdened.

To this end let us recommend to those who consult us for a hot weather *régime*, that they allow us to correct, by suitable treatment, whatever of existent disease there may be, or where the nature of the affection forbids that, to use such precautions as may arise from it. If otherwise healthy, that they move more or less in the air and sun each day, with clothing to the head that will not allow the sun's rays to pass too freely through, and yet be not too heavy, a closely-woven straw hat being the best; to the body, which shall not have tight bands, be light in color and weight, loose in texture, and comfortable in fit. Let the diet be sufficient to maintain the strength, with the fruits and vegetables of the season forming a very liberal part of it, and the stimulants, if used at all, very moderate in amount, a little lager, or a glass of iced tea occasionally, being far better than the gal-

lons of root-beer, ginger-ale, and soda-water, all iced to the freezing-point, which are habitually consumed by those who are making desperate efforts to keep cool. Let work go on, in a methodical but not at too ambitious a rate. Keep a clean person, but not by living in a bath-tub ; a clear conscience, but not by expiating past crimes ; a cheerful feeling, but not by a hot pursuit of pleasure.

1701 DIAMOND STREET, PHILADELPHIA.

Some New Theories of Digestion.¹

FOR a number of years it was our privilege to be able to give almost exclusive attention to the study of physiology. Nothing can be more fascinating either to pupil or teacher. During all this time, and even up to the present day, we had to believe that "the principal object of the saliva is to moisten the food and thus aid mastication and deglutition." And yet we had to face the fact that an enormous quantity of saliva was secreted every twenty-four hours. It appeared almost like a waste of the forces of nature. We had to believe that the moment this saliva reached the stomach it became inoperative. But now all this is about to be changed. Although Freirichs came to the conclusion a number of years ago that salivary digestion continued in the stomach, yet his work was practically lost sight of. Now Dr. J. H. Kellogg, of the Battle Creek Sanitarium, has just published the report of some extensive experiments in his laboratory of hygiene on starch digestion. Dr. Kellogg examined the contents of the stomach, after a test meal, in 4875 cases. In 669 of these cases he found the starch had been completely converted into sugar. Only in 1.8 per cent. of the cases did he find there was little or no conversion of the starch. This certainly must be accepted as conclusive, and hereafter we must teach that the digestion of starch takes place in the stomach by the aid of the saliva ferments. Clinically this will be of great value, and must result in a number of changes in our ideas of diet.

It is only within a few weeks that a chemist of Brooklyn, N. Y., Professor E. H. Bartley, published an article in the *New York Medical Journal* setting forth the dangers of having digested

¹ From The National Medical Review.

starch in the stomach. Our readers may recall the fact that a number of years ago a committee of American chemists were asked to report upon the dangers of taking a predigested starch into the stomach. Glucose was becoming such a generally distributed article, and was so largely used in the manufacture of confectionery, that this committee was asked to report upon its effects on the system. The report was both exhaustive and conclusive that no deleterious effects would follow its use, even in large quantities. But Professor Bartley has recently taken exception to this report. This is a very important question, for it is a fact that to-day the best candies in the world contain a large amount of glucose; while the most popular beer on the market has recently been shown to contain a larger proportion of glucose than any other brewed in this country.

It is very interesting to analyze some of the statements of Professor Bartley. For instance, he says that milk-sugar and cane-sugar are "intended" as foods in preference to grape-sugar, because the former require digestion before they can be absorbed. From this it is safe to reason that the more difficult a food is to prepare for absorption, so much the more was it "intended" as a food; therefore, boiled pork and cabbage were "intended" as foods in preference to the more easily digested eggs and milk!

Professor Bartley then speaks against cooked fruits, jellies, preserves, and fruit pies, because, he says, the cane-sugar is changed into glucose by heating it with the acid fruits. As is well known, "prolonged boiling" with an acid is necessary to make this change; while it is a practical fact that the housewife only brings her pears and peaches to a boil. Professor Bartley further declares that the reason why some persons can eat raw apples "without stint and without after-distress," and yet "cannot eat apple-pie without distressing after-effects," is because the latter contains this inverted sugar! This is almost ludicrous. It occurs to us there is more difference than this between ripe, raw apples and the average apple-pie with its historic crust! An equally absurd illustration is where he declares, "some persons can drink lemon-juice and water, but are sickened by lemonade or lemon-pie." As if lemonade were cooked! For he declares that it is the heating with the acid which changes the sugar into glucose; therefore, he must always take his lemonade "after prolonged boiling!" While lemon-pie, it occurs to us, has something more in it than digested starch to make it indigestible.

Professor Bartley is evidently averse to the "sweets," for he deals the candy manufacturers a death-blow. The professor relates instances of persons who were made ill by eating candy containing this variety of sugar, and whom he restored to health by refusing them all articles containing sugar, and by giving them "pepsin and hydrochloric acid with laxatives." This is like curing a man of some severe pain simply by combing his hair (and by the use of hypodermic injections of large doses of morphine)!

But this article is written with the view of showing how easily any number of theories may be overthrown when all the facts are made known. Professor Bartley says that digested starch is absorbed too quickly while in the stomach, and, thereby, "may prove too great a task on the liver," and "the blood may be overcharged with dextrose." The professor reasons that when milk-sugar or cane-sugar is taken it is digested below the stomach, and there more slowly absorbed. The whole drift of his article is to frighten those who take a predigested starch, for fear of causing diabetes!

In the light of the recent investigations of Dr. Kellogg, the absurdity of any such view is at once apparent. We now know that nature herself is digesting our starchy foods in the stomach, and that if these digested starches or if this glucose could in any way cause diabetes, we would ere this have been a race of diabetics.

For a long time there has been a growing sentiment throughout Germany that diabetes has not been properly treated. Hirschfeld says he believes that diabetic coma is favored by the exclusion of carbohydrates in the diet. Schmitz allows his diabetic patients a small quantity of albumen, while he orders the free use of food containing starch, and fat in large amount. Grube impregnates the system with the carbohydrates. Williamston, of Manchester, says that home-made bread is much better than especially-prepared diabetic bread. A number of American physicians are following out this line of treatment with better results than they have had heretofore.

In the light of all this, we must conclude that saliva continues its action on starchy foods in the stomach until nearly, if not all, the starch is changed into glucose; that glucose is simply a normal product of digestion, and no more injurious than a digested proteid; and that the treatment of diabetes is bound to undergo a marked change in the near future.

The Nervous Mother.¹

BY JOHN MADISON TAYLOR, M.D.,

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Howard Hospital, etc.



GRADUALLY ripening experience in the nature, peculiarities, and disorders of children leads me to value more and more early the exceptional opportunities for studying nervous women. Indeed, there seems to me so vital a connection between the condition of the offspring and the overshadowing much enfolding influence of the mother that I am at times inclined to rate this as of first importance in forming judgments on the little ones. Therefore, at your invitation to address you on a subject most condensed yet comprehensive among childish disorders (as the small compass of an hour admits), I am led unhesitatingly to choose the mother herself, to whom attention may, after all, be most usefully directed, in securing remedies for their offspring.

We all love to contemplate our *eidos*, or highest conception of the mother, the unspeakable beauty of which has alternately lured and baffled thinkers and poets since time was. Nothing is too good or can be claimed as too lovely in the way of description or praise for the ideal type of maternity, and that I leave to the consideration of those better or wiser, or, at least, bolder than I. My theme is pre-eminently the practical one of discussing with you the ordinary every day, more or less flawed, and, indeed, too often accidental mother. One word, then, as to how women come to arrive at this distinction, privilege or martyrdom, as it is variously viewed by the owner. And let me say, beginning life a most pronounced optimist, I remain such with only the inevitable chipping off of sharper-cut edges. The better part of a score of years spent in ministrations to the ailments of overwrought humanity, the condition of whose disrepair most usually has to do with varying shades of individual blame-worthiness, has compelled me to note the less beautiful factors which mould and fashion an originally wholesome personality. It is then with regret I admit that the average mother too often disappoints me,

¹ Part of a lecture delivered before the Newman Society of the University of Pennsylvania, January 15, 1895, and reprinted from the University Medical Magazine for July.

though I hasten to avow that of superb beautiful mothers it has been permitted me to meet not a few. There is a crying need for a special training for those who possibly may become mothers, it is certainly demanded for those who are about to become such. But, first and last, this crowning embellishment and glory of womanhood comes in great measure as a surprise, nor always is it heartily welcomed, and only rarely does it bring unalloyed joy. An enormous amount of trouble and expense is taken to avoid the title, or at least the frequent repetition of the blessing, and a good deal of thrusting out of sight conscience as to the methods used. I am tempted to speak at length on this phase of modern civilization, but leave it with the remark that as soon as specific instruction in the duties, privileges, and glories of maternity shall replace much of the pseudo-science which is fashionable in our halls of learning, so soon will we make great strides towards the solution of the common troubles and disappointments to which we doctors are subject while striving to do our utmost duty in furthering the expansion and betterment of our race.

It is safe to assume, then, that the mother realizes very little her responsibilities, be she of high or low degree, except it may be she has hastily devoured (and failed to assimilate) certain little books which are being offered in great numbers purporting to be "mothers' guides." Let us say nothing in disfavor of those treatises, because, poor as they often are, it is at least the only systematic teaching she is liable to get.

Again, this shortage in information is more marked in two directions, among the very poor and the very rich, while the maidens of the great middle class get more or less object teaching and opportunities to functionate as vicarious parent or caretaker to brothers and sisters, and thus early learn the practical duties of motherhood.

There seems to me one particularly promising avenue through which motherhood ideas shall be acquired. The kindergarten offers by far the best opportunities for children to learn their duties to themselves and each other from the fundamental basis. Froebel's beautiful concept or system includes as assumed motherhood as the point of both departure and return. Thus the child learns its primal duties and privileges, and always in relationship to the mother, and not the least important part of the programme is that the concept of a perfect, all enfolding, infinitely wise and tender parent is produced. The feminine child will grasp this in

a more practical way than the male, and consciously or unconsciously will form herself on similar lines. Such a girl will grow up a more womanly woman, will develop a wholesomer femininity than can be expected of any accidental methods. When in due course of nature children come to her they will find motherliness of infinite variety and scope passing the bounds of reasonable expectation. Thus through the expansion of this now happily widely growing system of education seeds of gravest importance are scattered, much of which will fructify in unexpected fashion and to the great advantage to mankind.

The first glimpse we doctors get of the family circle is often a scene of chaos and excitement begot of an emergency well defined or merely suggested, tangible and serious or purely fanciful. Medical practice is comparatively a simple matter in a well-ordered hospital with full opportunity for deliberate investigation and with skilled observers and helpers ready at hand. Into an ordinary household, however (where the customary march of the hours is rhythmical and well ordered from one comfortable domestic step to the next, where the capacities of the feminine head are chiefly taxed in keeping this admirable procession where each one knows his place in easy motion), let there come the horrible spectre of disease, and the whole equipoise may well be catastrophically lost. These are the trial times of the soul, when the inherent qualities of character quickly reveal themselves. It is a mercy medical men are trained to be discreet and silent, as well as prompt and decisive. The shallow woman, given over to pettiness and self-love, whose acquired cleverness, moreover, enables her to pass current in the familiar exigencies of society, where alone her training and experience are acquired, has her thin veil of artificialities rudely jostled aside by the shadow of death. If she be a weakling, contemptible cowardice is probably shown. If strong, a selfish revolt at the discomforts about to fall upon her may be evidenced in a way to disgust the most forbearing. If, however, the mother be merely uninformed and ignorant, but well endowed with possibilities and, with all, eager to assume her proper place, then is the task to direct and aid an easy and pleasant one.

And here let me say we medical men not seldom earn the right to be "doctors" or teachers, so often does it fall upon us to teach the graver duties and accountabilities, so largely are we called upon to mould and train the unformed human character.

It is a common experience for us to find that what we have a right to believe, and should be able to regard as specimens of excellent womanhood, are, when the test comes, but miserable mockeries, mere semblances of human souls. Nor is this usually the fault of the individual, rather her misfortune. Character, the highest jewel in our crowns, comes to perfection only through strife and suffering. And whether one has that within them of which character may be made depends solely upon suitable conditions for its development. Hence we may have the spectacle of sudden, swift, and dazzling soul-growth in an hour or a night at the magic touch of stern necessity and occasional critical juncture. And how gratifying it is to aid this personality, how unflinchingly can we serve and labor for such an one. But the reverse picture must be contemplated when the plummet of circumstances thumps dully in the shallows revealing the tiny soul to be but a picturesque nothingness.

Results are accomplished in this vale of co-operative suffering almost solely by mutual aid. Those of us who direct and counsel the family in matters of life-preserving and saving depend necessarily upon the intelligent support of those who are mentally and authoritatively competent; we cannot assume control unless invited and supported. We may be forced to look beyond the one in most direct authority if that person be incapable of wielding it, but it hampers us most sadly. There must be an intelligent court of appeal, however remote or feeble.

We may then divide mothers for purposes of special description into those who through ignorance or apathy, or both, concern themselves scantily as to their offspring or their woes, and those others who, in excess of love or zeal or vanity, or from mere inherent fussiness, make more of their offsprings' corporeal states than circumstances actually warrant. The ignorant or lack-lustre parents are simple problems enough, and for the children of such are either the refuge of hospitals, homes, asylums, etc., provided in such lavish excess, or the trained nurse who, all said and done, gives very great satisfaction to both physician and baby.

We have here, however, naught to do with the consideration of the honest, wholesome, clean-hearted, ever-beautiful mother who earns the name through whole-souled endeavor (however short her varying capacities may fall), except to say, here and ever, God bless her, as He undoubtedly does.

We now arrive at the subject of our discourse, "The Nervous

Mother," though that phrase all inadequately expresses what I have in mind, and I can only sketch out certain types and suggest how practical medical advisers may use our knowledge of these varying peculiarities to enable us to rightly assist the children.

Among the unexpected rewards of the physician's life is to see swift character growth, a maturity of mind and judgment the direct outcome of complicated exigencies and sudden responsibilities. My experience leads me to conclude that this most frequently occurs in the refined, well-educated women who have grown up in an atmosphere of comparative luxury.

I mean, to be more exact, that most often have I seen the dreamy, placid, or frolicsome maiden transform at a flash into a woman of clear judgment and robust fortitude among those whose uprearing occurred in an atmosphere of ample education and refinement, less often in the ranks of poverty (for there character-growth is apt to be checked by selfishness), and least often where youth was spent in that other and worse school of selfishness, "the unemployed rich."

In looking somewhat carefully over my experience, I am inclined to believe that a liberal education, not forced or unduly specialized, is an excellent foundation for wholesome motherhood. Even the college-bred woman, against whom the finger of scorn, at least of envy and bitterness, is too often pointed, is better fitted for maternity in body and mind than those who spend the corresponding years in aimlessness. And if a girl "finishes school" early and waits—for what? she stands in far more peril of various ills than if she had in many ways the inestimable advantage of college life and training.

Over-intellectuality, to be sure, is unwholesome, but is not so much a cause of physical deterioration as an evidence of unstable equilibrium in body or mind. The law of conservation in Nature's forces generally provides that among geniuses procreation is rare.

A difficult problem for a medical advisor is the highly educated woman of overlofty ideals, who becomes accustomed to sway the minds of colleagues in matters of literature, art, reform, religion, or, worst and emptiest of all, foreign missions. Children of such mothers are simple problems—to them—they should be seen or heard rarely from others. It is wrong and disturbing to be obliged to bring the mind down from realms of thought worthy of her brain and redounding handsomely to her lust for adulation

to decide on points of petty education of right and wrong and childish plans and pleasures. Indeed, I for one do not advise that such a mother be kept very severely up to the line of maternal duties till the children grow up to her (comparative) intellectual level, provided a suitable caretaker and instructor be employed. These women may make excellent mothers to a maturing intelligence, whereas, by accident or design, they have lost capacity for the lower levels. You cannot expect a college professor of transcendentalism to be also a good kindergartener.

Some women (and not masculine ones either), viewed in the light of their later history, are intrinsically unfit by natural qualities and tastes to bear the responsibilities of a family. It is enough for them to be wives, if, indeed, even here they fill their niche. At least they seem occasionally to present elements of well-sustained attraction to their husbands.

These might be classified as wives or companions, and so powerful is the masculine instinct of loving and protecting a mate to his liking that it appears to be enough for such to bask in this manly radiance, and maintain a moderately happy existence.

To these, however, children are accidental and usually regarded as disturbing incidents, endured in patience often, always a matter for surprise and confusion, and, finally, it may be, exciting pride and gratulation. The medical advisor here had best take control of the upbringing in conjunction with the father.

Some other women, in sharp contrast to these, plume themselves on a vivid interest in their flock and ruffle bravely in the face of society, conceiving plans and principles of hygiene, training, and education of startling iridescent vividness of the hues and stability of soap bubbles and of little more consistence.

These are easily advised, however, and usually have just enough of judgment to recognize adequate authority, and their children suffer little.

Some others again of this last type, but of more robust purpose, puffed up by the distinction of maternity, evolve foolishly conceived and hastily constructed views on the rearing of their offspring, which, aired before grandmotherly unwisdom, and thereby fortified in all their worst features, become a despair to the poor doctor, and a never-ending source of confusion. Not that I am intending to impugn the value of theories the product in part of unconscious instincts, provided they are left open and

elastic to receive moulding impresses from expert advisers, for of such are the practical guiding principles of life frequently made.

And this brings me to a most difficult class,—those women who, possessed of some vigor of mind, but of no sufficient direction of thinking, and lacking due judgment, yet of tenacious purpose, conceive and assume theories of mental and bodily development based upon erroneous premises, bad physiology, and worse pathology, and who still enjoy the conviction that Heaven has sent them a precious and sacred charge which they are to unflinchingly accept. It is not to be thought for one moment that their vigilance will falter or their judgment fail. They need no guidance in the underlying principles of life and growth. They may condescend to receive hints from a physician whose views have been thoughtfully investigated and found to coincide sufficiently with their own, but only in this special line, no more. And let him beware lest at any moment he be found wanting according to her standard of admissible views on diet or doses, for then must he give place to some other whose claims are more noisy, better known in her social sphere, or, finally, more wrapped in the delicious mysteries which surround the softly purring, sleek, and highly tactful pseudo-physician.

Again, there are those women who, do what you will to make clear principles and directions, yet seem unable to apprehend your meaning; who seize upon the least important hints, and magnifying these lose sight utterly of the fundamental ones. They may be really intelligent, but so unbalanced, so lacking in powers of concentration or so astigmatic their conception of the meaning of words, that the lives of their charges are actually imperilled, especially when they begin “to use their judgment” here and there.

For such written directions of most minute explicitness are needed.

I may be permitted, perhaps, to say a word as to what sort of person, all things considered, makes the best mother. I will begin by uttering the platitude that there is a wide difference betwixt good judgment and high intelligence; also that the highest practical wisdom often resides in those who, with capacities for judgment, yet have their mind serenely open to the reception of knowledge, let this come from whatsoever source, direct or indirect, human or divine. The best mothers come from healthy-minded maidens who are happily free from the exuberance

of adolescence. The whole subject of adolescence is of vital importance,—its tendencies, its possibilities,—and is only recently receiving attention at the hands of students. That foolish women are so fashioned by Nature and quite beyond their own control is true, no doubt, but it is equally true and far more to the point that many of them could have escaped that fate if the element of choice which resides in all of us, supplemented by the moulding influences of teachers, had been by them more judiciously used. The critical times of the soul are many, but in the subdivisions of epochs none is of greater importance than the period of adolescence, just as the brain is expanding in energizing power.

The nervous mother, whom I had it in my mind to dilate upon, is that oft-recurring acquaintance who realizes her unfitness to judge and decide either from instability of mind or inadequate knowledge, and who is perpetually fluttering up and down her scale of apprehensions and rarely finding rest. She yields blind confidence to her medical confessor, even to the hurt of these dear ones in her agitated keeping if she be of a true and generous heart, or if an undercurrent of acidity vexes her soul she flies the track on small provocation, or none, and seeks a new advisor, hoping for perfect wisdom ; but doubtfully.

These women are of manifold variety. Some develop grandly ; some degenerate surprisingly ; some persist in self-abnegation, sacrificing all to the needs, real or fancied, of the children. Others suddenly become apprehensive on their own account, and under stress become hysterical invalids, imitating the disorders of their children even, or more commonly falling into a mixed state of ill health with picturesque trimmings, the outcome of prolonged tension on a relatively unstable nervous organization.

Some again suffer vicariously, but only psychically, others become permanently or, at least, seriously changed in body and mind.

And here treatment—prompt and efficient—must be directed to these women, both because they need and deserve it, but chiefly because their children, whom we are considering, demand it.

Too much prominence can scarcely be given to the importance of wisely directing the very earliest mental trend of the about-to-be mother, not only for herself in the formation epoch, but especially for the coming child. Strive to induce such folk to avoid brooding upon the gravity of coming responsibilities, nor let them vex their souls with technicalities at this late date,

but depend rather on good wholesome advice, "a man chooses a course of action, but a woman chooses an advisor," whether it be a clerical or medical one. Never will a woman want a wise medical examiner so urgently as in this prematernal stage, and much can then be gained of wholesome mental attitudes, which will be the firm foundation of future wisdom.

And there, also, is the grandmother, possibly two of them, doubtful factors always, about whom I am almost too timid to speak, because they do mean so well. Their wisdom is usually accepted on all sides, a relic of ancestor worship, the sacredness of the father, the fundamental idea of reverence for knowledge. This is as it should be. The grandmother ought to exert a power for good second only to the priest. But absolute obedience is only possible nowadays when the reasons are in the main and collectively sound.

If, therefore, the grandmother has shown herself to be a conspicuously wise mother she has the right to exert grandmotherliness, provided she keep herself reasonably well informed on the hygiene of infants and others. But, alas! too often forgetfulness and serene self-esteem, the habit of being obeyed unquestioningly dulls the edge of knowledge and the shrivelled skeleton of the aforesaid grandmaternal wisdom becomes quite useless. I knew a lady well who, after bringing forth a good-sized family, ceased to bear till suddenly, to the surprise of all, eight years after the birth of her youngest, appeared another baby. She often remarked to me how ridiculously her remembrance of little rules of nursery-conduct had slipped her memory just when she was depending most upon herself. I promptly called her attention to the fact that if this were true in the lapse of so short a time, how little might one expect a grandparent, whose lines of thought grew up with her children, to change her point of view to suit their growing needs, and not continuing to improve the earlier and relatively scanty knowledge of children and their ways.

If the only fruit of much living is, as Thoreau remarks, the ability to do some slight thing better, there are higher and better things, no doubt, than concerning one's self with childish things.

The conditions, however, of doing even this well is to continue to dwell upon such matters, and by so doing brighten judgment, or else offer immature conclusions with becoming modesty.

Sanitary Climatology.

INFORMATION RELATIVE TO THE INVESTIGATION OF THE
INFLUENCE OF CLIMATE ON HEALTH.



HE investigation of the influence of climate on health that has been undertaken by the Weather Bureau was first made public by the issuing of a circular, of which the following is a reprint :

Circular No. 1. Sanitary Climatology.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Washington, D. C., January 2, 1895.

The interest manifested by every class of people in the subject of climate and its influence on health and disease has determined the Honorable the Secretary of Agriculture, through the medium of the Weather Bureau, to undertake the systematic investigation of the subject.

It is hoped to make the proposed investigation of interest and value to all, but especially to the medical and sanitary professions, and to the large number of persons who seek, by visitation of health resorts and change of climate, either to restore health or prolong lives incurably affected or to ward off threatened disease.

The study of the climates of the country in connection with the indigenous diseases should be of material service to every community, in showing to what degree local climatic peculiarities may favor or combat the development of the different diseases, and by suggesting, in many instances, supplementary sanitary precaution ; also by indicating to what parts of the country invalids and health seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases.

The hearty co-operation of the various boards of health, public sanitary authorities, sanitary associations and societies, and of physicians who may feel an interest in the work, is asked to achieve and perfect the aims of this investigation.

No compensation can be offered for this co-operation other than to send, free of cost, the publications of the bureau bearing upon climatology and its relation to health and disease, to all those who assist in the work.

Co-operation will consist in sending to this office reports of vital statistics from the various localities. That these reports may be of value, it is evident to all that they should be accurate and complete, and be rendered promptly and regularly. Blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the bureau on application.

At the very beginning of the investigation it is not possible to outline precisely the channels through which the results obtained will be made public, but it is hoped to publish soon a periodical devoted to climatology and its relations to health and disease. The publication will probably

resemble in size and general appearance the present Monthly Weather Review, the subject matter being, of course, different.

More detailed information will be furnished on application.

MARK W. HARRINGTON,
Chief of Bureau.

This circular was printed either in full or in abstract in the leading journals of the medical and general newspaper press.

The methods and details to be pursued in gathering together the data required for the investigation had not been matured when the circular was published, and its purpose was mainly to elicit suggestions and to gain some tangible estimate of the extent of the statistics and of the number of co-operators that could probably be expected. At the same time, letters were addressed to the various officials of this bureau, scattered throughout the country, asking them to ascertain the methods of recording vital statistics in vogue in their respective localities. From the information obtained by these means the plan and details of the work have been determined so far as the possibilities of an untried experiment will permit.

The investigation of the relation and application of climatic agencies to hygienic conditions requires the collection and collation of the essential facts of both meteorology and hygiene. While the bureau will obtain the necessary climatic data from the records of its various meteorologic stations, it must look to the voluntary assistance of the medical and sanitary professions for the statistics of mortality and morbidity; and the ultimate value of the investigation will depend in a great degree upon the interest these professions take in the enterprise.

VITAL STATISTICS.

Wherever it is practicable, the mortality and morbidity statistics will be collected by weekly periods.

The kinds of facts that are desired relative to mortality and the shape in which they are asked to be returned will appear from the following copy of the blank form prepared for the purpose:

510—The Annals of Hygiene

Report of deaths in
For the week ending, 189 .

Cause of Death.	Color.	DAYS OF WEEK.							Total.
		S.	M.	T.	W.	T.	F.	S.	
Bronchitis	W.								
	C.								
Consumption	W.								
	C.								
Croup	W.								
	C.								
Diphtheria	W.								
	C.								
Erysipelas	W.								
	C.								
Heart-disease (organic) .	W.								
	C.								
Influenza	W.								
	C.								
Intermittent fever . . .	W.								
	C.								
Intestines, inflammation of	W.								
	C.								
Kidneys, inflammation of	W.								
	C.								
Measles	W.								
	C.								
Pneumonia	W.								
	C.								
Rheumatism	W.								
	C.								
Scarlet fever	W.								
	C.								
Small-pox	W.								
	C.								
Suicide	W.								
	C.								
Typhoid fever	W.								
	C.								
Whooping-cough . . .	W.								
	C.								
	W.								
	C.								
	W.								
	C.								
Other causes	W.								
	C.								
All causes	W.								
	C.								

Report of deaths in

Deaths by Ages and Sex.	Color.	DAYS OF WEEK.							Total.
		S.	M.	T.	W.	T.	F.	S.	
Under 1 year	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
1 to 5 years	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
60 years and over	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
Males	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
Females	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....

CONTAGIOUS DISEASES REPORTED.

Scarlet fever	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
Diphtheria	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....
	W.	.....	.....	.....	.....	.....	.....	.....	.....
	C.	.....	.....	.....	.....	.....	.....	.....	.....

Estimated population.....

Death rate per annum per 1000

Total number of births during the week.....

(Signature)....., M.D.

This form is designed for the use of boards of health and health officers in returning the deaths occurring in their respective municipalities, districts, and States during any calendar week. Provision is also made thereon for reporting such diseases as may be registered as dangerous to public health.

The following suggestions to be observed in making out the foregoing form are submitted to secure uniformity, so essential to all statistical work :

1. The number of deaths from each cause or group of causes thereon named should be entered for each day ; the white mortality in the line opposite the letter " W," and the colored (negro) mortality opposite the letter " C."

2. The caption "Intestines, inflammation of," is intended to include those diseases of the gastro-enteric canal characterized by acute or chronic inflammation, such as are variously classed under the headings, enteritis, gastro enteritis, diarrhoea, dysentery, cholera morbus, etc.

3. The caption "Kidneys, inflammation of," is intended to include acute and chronic Bright's disease and acute and chronic nephritis.

4. The number of deaths of visitors from each cause or group of causes should be stated, especially for those localities that are frequented as health resorts; for it is obviously unfair to attribute deaths of valetudinarians to the community in which they may chance to be visiting at the time of death.

5. Blank spaces are left for the names of any other diseases that may have caused a mortality to such a degree as, in the judgment of the reporter, to be deserving of notice.

6. Under the heading "Contagious diseases reported" the number of cases (not deaths) reported should be entered. As the diseases considered as "notifiable" differ in different localities, the spaces are left blank, with the exception of "Scarlet fever" and "Diphtheria," two diseases regarded as specially contagious in every locality.

7. Under "Remarks" such elements and conditions of weather should be noted as, in the opinion of the observer, may have had an influence upon the sanitary conditions of the locality.

8. If it should not be convenient to give the deaths day by day, the total for the week will be acceptable.

9. Official envelopes, addressed to Chief of Weather Bureau, are furnished for mailing these forms. These envelopes require no stamps, being transmitted free through the mails.

10. Whenever the supply of either blanks or envelopes is exhausted, a new supply will be sent on receiving notification.

The bureau appreciates the difficulties under which many of the public health authorities labor as regards clerical force and incompleteness of returns, and does not wish it to be inferred, because the reports cannot be made as complete as the blank provides for, that less complete statistics will not be of use.

The following is a copy for morbidity statistics, and is intended for the individual physician to use in reporting the presence in his practice, and consequently in his locality, of the diseases named thereon.

SICKNESS STATISTICS FOR USE IN SANITARY CLIMATOLOGY.

(Name of Place)

Week ending, Sat., 189 .

Diseases.	Prevalence.	
Asthma	O	
Bronchitis	O	
Catarrh (a)	O	
Consumption	O	
Croup	O	
Diphtheria	O	
Erysipelas	O	
Heart-disease (organic) .	O	
Influenza	O	
Intermittent fever . . .	O	
Intestines, inflammation	O	
of (b)	O	
Kidneys, inflammation	O	
of (b)	O	
Measles	O	
Neuralgia	O	
Pneumonia	O	
Rheumatism	O	
Scarlet fever	O	
Typhoid (enteric) fever .	O	
Whooping-cough	O	
.	O	
.	O	
.	O	
.	O	
.	O	

REMARKS:

EXPLANATION: Please indicate the prevalence of a disease by drawing a mark through circle, thus: Bronchitis Θ , signifies the presence of bronchitis; Asthma O, that no case of asthma was present.
 (a) To include acute rhinitis, tonsillitis, and pharyngitis.
 (b) To include all diseased conditions of the viscera characterized by acute inflammation.

....., M.D.

The explanation printed thereon shows how it is to be used. This form should be mailed without cover, being treated as an ordinary postal card, and requires no postage for transmission through the mails.
 Co-operators will be supplied with penalty envelopes to be used in corresponding with the bureau upon official matters, as in asking for supplies or information necessary to their assistance in the investigation; and co-operators are requested to anticipate by timely notification the exhaustion of their supplies.

The bureau requests that co-operators will forward their reports as soon after the end of the week as convenient, to the end that the statistics may be received in time to afford ample opportunity for compilation and publication while the events are still fresh enough to be recalled by either the general reader or the student of medical climatology.

COMPILATION.

The vital and meteorologic statistics, having been received, will be collated by general averages and by particular and selected events, as the comparison of the general mortality with the average conditions of the weather for the week, and the passage of storms and cold or hot waves, the appearance of epidemics, etc. Also, in instances of well-defined weather disturbances, comparisons of vital and meteorologic statistics will be made by daily periods. For example, a storm appearing in the western part of the country will be followed day by day as it passes eastward across the country and the illness and deaths reported for these days from the localities traversed will be compiled and compared with the same kind of facts reported both before and after the storm. The same plan of treatment will be pursued in dealing with hot and cold waves.

By these methods we may hope to be able to give, in time, definite information as to how much and how the accidental and constant variations of the weather affect the sick and well, and in what way the present forecasts and weather charts can be used in both curative and preventive medicine.

The calendar week has been adopted as the period of time for collecting statistics and making the general comparison; because in longer periods, for instance a month, the evidence of extreme fluctuations in either the meteorologic or sanitary conditions is more or less smoothed out in proportion to the length of time during which the events happened. Also, because it has the advantage over other short arbitrary periods in being familiar to all, and one by which so many of our ordinary events and actions are reckoned.

THE PUBLICATION.

A publication containing the collected and compiled facts will be issued monthly. This publication will comprise, in the shape of tables, charts, and diagram, the chief meteorologic factors as observed and recorded by the officials of the Weather

Bureau, and the statistics of mortality and morbidity as reported by the various public health officials and by individual physicians ; also brief statements of the general sanitary conditions of the different localities, especially as may have been influenced by the weather.

Under no circumstances will discriminating or advisory notices of any locality be published. The entire aim of the bureau being to collect the facts and statistics for the sanitary and medical professions and for the general public, to use in such ways and for such purposes as they may see fit.

MARK W. HARRINGTON,
Chief of Bureau.

New Micro-Organism in Pork.

Frank J. Thornbury, M.E., thus writes in the *Buffalo Medical and Surgical Journal*: In my work as microscopist in the Bureau of Animal Industry, I have commonly observed in various parts of the muscular system of swine undergoing inspection, with reference to the presence of trichina, a peculiar fungus. This fungus presented itself in the form of bundles of threads which have various colors and are intermingled with the muscle fibres, or found separate in a clump, under the field of the microscope.

Out of 1000 hogs inspected daily at the government abattoir, Buffalo, I have found fifty, on an average, to be infected by this organism.

The parts of the carcass from which samples are taken for the trichinous inspection are the diaphragm, neck, and loin respectively ; hence, these were the parts in which I have usually found the fungus. As corroborated by Professor Miller, of Berlin, this organism belongs to the *saccharomyces* or yeast group. It has very distinctive morphological characteristics, and I present for inspection pure cultures in every media which we have at our disposal. At a later time I will detail the peculiarities of growth of this organism in the various media and give the results of my experiments upon animals. A pathogenic potency of this fungus—*saccharomyces porcus*—is shown by the destruction of white mice and rats twenty-four hours after inoculation. I have recovered the organism from the blood of these animals, which is found to be heavily laden with them.

THE ANNALS OF HYGIENE
PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
A YEAR, IN ADVANCE.
Address all communications to
UNIVERSITY OF PENNSYLVANIA PRESS
EDITORIAL

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COMMUNICATIONS SOLICITED.

We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

Some New Theories of Digestion.

WE desire to call special attention to the article, elsewhere published in this issue, on "Some New Theories of Digestion." Dr. J. H. Kellogg not only has most complete facilities at hand for the investigation of any subject that he may take up, but he has also an observant and analytical mind well calculated to make correct deductions from the data before him.

We are glad to learn that Dr. Kellogg's observations tend to confirm the opinion that we have always held and taught in reference to the very important part played by saliva in the digestion of food.

We have always held that an absolutely necessary preliminary to good digestion is, not only a thorough maceration of the food by the teeth, but also that this macerated food should be made pulpy by a complete admixture with saliva before it is swallowed into the stomach.

We have often thought that much of the indigestion so common with the users of tobacco (particularly chewers) is probably due to the waste of saliva by expectoration and to the deteriorated quality of that which is not thus wasted.

Another point of very great interest is the observation that, in the stomach, starch is completely converted into glucose or

starch-sugar. Recent observations, in many directions, are tending to prove that the nutritive value of sugar is very great.

To us, it is a source of wonder that this fact was not long since realized.

A healthy child is a good mirror from which are reflected the teachings of nature, and who ever saw a child without an innate, instinctive liking for sugar; the taste for alcohol, tobacco, mustard, pepper, horse-radish, etc., are all acquired, and, therefore, unnatural; but, from the very moment of its entrance into the world, the baby will greedily consume sugar, with an evident pleasure and satisfaction derived from no other article of diet.

Does not this universal, instinctive, *natural* craving for sugar, coupled with the fact that three-fourths of our daily food consists of starch, which is all converted into glucose before it can be assimilated, suggest to us that sugar must be designed to play an important part in the growth, development, and maintenance of the human being?

Our own conviction is that pure sugar and pure glucose candy are not only not injurious to health, when not used to excess, but that, as sugar, they really constitute one of the most efficient and necessary of all forms of nourishment.

We bespeak, in conclusion, a careful perusal of Dr. Kellogg's observations.

The Hygienic Treatment of Anæmia.

A SUBSCRIBER in New York City asks if we can give a reliable article on the hygienic treatment of anæmia.

This is very easy and, at the same time, very difficult to do.

Anæmia is a very much abused, very illy used, and but poorly defined word; it is in reality but a symptom, and not, in itself, a disease.

If we should be asked for the hygienic treatment of convulsions, our first question would be as to the cause. If from improper eating, from a depressed fracture of the skull, or from any cause that could be discovered, the removal of this cause would constitute the hygienic treatment of the convulsions.

So is it with *anæmia*; a thin, colorless, easily fatigued person is said to be anæmic, but from what cause? Is it because of a sedentary life? then exercise in the open air is the remedy. Is it

because of a deficiency of iron in the blood? if so, the remedy is obvious. Is it because of some draining hæmorrhage or discharge? if so, stop it. Is it because of some organic disease? if so, appropriate treatment for the disease that causes it will remove the anæmia.

What is the cause? that is the key-stone of the hygienic treatment of any disordered condition. The cause must be discovered and, if possible, removed; then nature, always inclined towards restoration, will make the body well again. Without a knowledge of the cause there can be no rational treatment of anæmia or any other disordered condition.

Degeneracy.

MAX NORDAU'S book on degeneracy has probably called forth a greater diversity of criticism than any other book of modern times. Is the human race, as a whole, degenerating, or is it the degeneration of a single mind that causes it to see evidences of degeneration in the human beings that it views?

To our way of thinking, Nordau is both right and wrong. We cannot but divide human beings into two great classes, which for lucidity we will designate "naturalists" and "artificialists." There seems to be implanted in the make-up of a certain portion of humanity a desire for change, for variety, a dislike or distaste, so to speak, for what they call monotony; that which they do to-day they are not inclined to do to-morrow; something new, something novel, something different from that which has preceded it, whether it be in dress, occupation, pleasure, or in any direction, diversity only seems congenial to these persons.

Now the student of humanity full well knows that the human being is but an incident of nature; he knows that regularity is a great law of nature; he knows that what is sometimes called monotony,—that is to say, the regular repetition of the same acts at the same hours,—he knows that this is an absolute requisite in the grand designs of nature. In his primitive state man was a *regular* animal, almost, if not quite, to a unit.

As time passed on, the restless spirits, craving this change and variety to which we have referred, became, so to speak, *irregular* animals, and in this way originated the division of "*artificialists*."

From the earliest ages humanity has been capable of division into these two classes ; Augustus and Constantine were naturalists ; Nero and Caligula were artificialists. Is our meaning clear before we proceed ? “ Naturalists ” are those who instinctively, or studiously, comprehend the laws of nature and regulate their lives in accordance therewith ; “ artificialists ” are those who, discontent with the monotony of natural laws, disregard them for the “ code of impulse ” that has been established and is being daily elaborated and modified by restless, dissatisfied beings like themselves. Artificialists are, and always have been, degenerating physically. Artificialists would ultimately evolve humanity into some insignificantly inferior condition, were it not for the counteracting influence of the naturalists, who are continually elevating it from the pit of degeneracy into which the artificialists have plunged it.

Nature is conservative ; nature is powerful ; nature compels, to a certain extent, an observance of her laws, and this is how she works.

The “ naturalist ” farmer, financially poor, physically a *Cræsus*, after a hard day’s work, retires to rest, not exhausted, physically or mentally, but just *healthfully* tired ; not too tired, but just tired enough ; just as tired as nature intends that he should be,—bear in mind that I am writing of the *ideal* naturalist farmer, and that I am making a vast distinction between “ being tired ” and “ being exhausted.”

While in this natural condition our farmer starts on the journey of life a new human being. This creation, a born naturalist, gives no evidence of degeneracy. As time rolls on, the monotony of the farm becomes irksome ; the allurements of artificialism make a convert ; the metropolis is sought ; night and day are given up to exhausting labor, and the hearty, healthy naturalist has become a multi-millionaire artificialist.

Exhausted mentally and physically, with liver and stomach and kidneys more or less deranged, with nervous system prematurely wearing out, the magnate launches on the sea of life a human craft, a degenerate human being, an organism inheriting a diminished and vitiated vitality ; in turn this degenerate begets one still more degenerate, and so on until the self-evident evidences of degeneracy are so marked as to call the attention of the individual himself to his own degeneracy, and to constantly remind him of the necessity for some remedy.

Then does the degenerate artificialist become a convert to the regenerating doctrines of naturalism, and thus commences a gradual process of regeneration until we come back again to the production of a *fac-simile* of the *ideally* healthful naturalist farmer from whom we started. Nature works in cycles, and all evils have a tendency to correct themselves when they have grown to a point of intolerance.

By this cycle of degeneration and regeneration does nature save humanity.

We once heard a gentleman of 80 boast that he would leave each of his half dozen children \$1,000,000; and he did; but he left them no health or strength with which to enjoy it. The vigor that he should have transmitted to them he himself consumed in the accumulation of this colossal fortune. To conclude, then, our idea is that the artificialists are continually degenerating and the naturalists continually regenerating, and that because of the beneficent influence of the latter the future of humanity is safe, even though the degenerate themselves may not thus view it.

Ever since the introduction of artificiality into the affairs of humanity this cycle has been going on; the degenerate and the regenerate always have been, and always will be, with us, but the greater the number of converts to the doctrines of naturalism the greater will be the sum total of present human happiness.

Sewer Gas.

THERE is nothing more illy understood, more unintelligently discussed, than sewer-gas. About one year ago one of the most eminent Sanitarians in this country, in the course of a discussion on diphtheria, said that later observations seemed to show that diphtheria had no connection with the emanations from sewers, and that, in this connection, there seemed to be but little left except the very vague and nameless condition ordinarily referred to by physicians as "sewer-gas poisoning." Now water will not make a man drunk, but if he adds whiskey to it, the mixture will produce intoxication. No more will sewer-gas produce any specific disease unless the germ of some specific disease is contained therein.

We have seen published statements to the effect that certain specimens of sewer-gas were found to contain, comparatively,

less disease-germs than certain specimens of the atmosphere; and, again, that specimens of sewer-gas were found absolutely devoid of disease-germs, and the inference drawn therefrom that sewer-gas was not inimical to health.

Now we know that an atmosphere containing, roughly speaking, seventy-nine parts of nitrogen and twenty-one of oxygen, is what nature has designed for healthy animal life. If into a room containing this atmosphere we turn a stream of illuminating gas, of carburetted hydrogen, we will not give the occupants thereof diphtheria, typhoid fever, measles, or scarlet fever, but we will injure their health, because we have added to the atmosphere that they breathe some ingredients not designed by nature for the maintenance of healthy animal life.

Now what is sewer-gas? It is a combination of gases arising as the result of putrefaction of organic matter. What is nature's design for the utilization of these gases? That they shall give nourishment to vegetable life; they are not intended for animal life and cannot be used thereby without detriment to the organism. They will not produce specific disease unless the germ of specific disease be present, but they will produce disease, in so far as any departure from the healthy standard is, in reality, disease.

Pure water will not produce typhoid fever, but, if into this previously pure water we introduce a number of the germs of typhoid fever, the water becomes a means of causing the disease. Sewer-gas devoid of particular, specific germs will not cause particular specific disease, but sewer-gas, even without these germs, will cause a departure from the healthy standard.

Wanted a Philologist.

A man is reported to have said, in applying for a summons at a London police-court recently against a boy who had kicked his leg, that the leg was a "very serious one,"—in fact, it was a "haricot leg." Noticing that his worship looked somewhat mystified, the applicant then explained that his leg had "haricot veins" in it. It would be interesting to know by what process of thought this derangement of epithets was arrived at; for, so far from being the single instance on which the phrase has come under our attention, we are aware that it is quite a usual colloquialism among the lower orders for varicosity of the lower extremity. But why?—*London Lancet*.



The Multiplying Power of Germs.

Cohn says a single germ could, under good conditions, multiply in three days to 4772 billions and make a mass weighing 7500 tons.

Bernhardt's Hygiene.

Mme. Bernhardt has been asked how it is that she wears so well. The answer that she gives is that she never thinks. She plays to her finger-tips. Her life is acting. Reflection she leaves to the dreamers. "It is thought that wears one out."

'Tis Worry that Kills, not Work.

Worry, says somebody, annually kills more people than work, for worry fatigues the nerves; but it is useless to tell people of nervous temperaments not to worry. One should strive, however, to avoid all things that tend to disturb the nerves. Throw away a pen that scratches and a pencil that has a bit of hard lead in its make-up. Discard a needle that "squeaks" and a basin that leaks. Use sharp tools and wear soft garments. Oil the hinges of the rheumatic door and fasten the creaking blind.

Leprosy in Norway.

According to the most recent statistics, furnished by Dr. E. Kaurin, of Molde, leprosy is disappearing more and more in Norway. In 1856 there were about 3000 lepers in that country; at the end of 1892, there were not over 800 or 900, half of whom were inmates of the leper asylums. Since then the number has so much decreased that it is proposed very soon to close two of the five asylums in the country. The author's opinion is that leprosy is an exclusively contagious affection, and that heredity is not to be regarded as a predisposing cause. Strict segregation of lepers is, he believes, absolutely necessary in order to stamp out disease.—*Journal American Medical Association.*

Development by Electricity.

The development of the muscles of the body in a way other than by physical exercise is made possible by the proper use of electricity. A regular application of the electric current to any particular set of muscles in the body often results in their weight and strength increasing as much as 40 per cent.—*Popular Science News*.

The Doctor in Athletics.

It looks now as though Dr. Wm. G. Grace were likely to have a larger testimonial for having made 200 runs at cricket than our most distinguished medical men have ever had for years of successful professional work. One of the London daily papers has started a testimonial fund, and it is stated that nearly \$10,000 have already been collected.—*Medical Record*.

Ancient Remedies for Hiccoughs.

The hiccough seems to be a modern and dangerous disease, but the ancients knew it and prescribed remedies that might now be tried advantageously. Galen recommended sneezing. Aetius approved of a cupping instrument, with great heat to the breast. Alexander believed in an oxymel of squills. Al-saharavius made use of refrigerant draughts. Rhases put his trust in calefacients, such as cumin, pepper, rue, and the like, in vinegar. Rogerius looked kindly on calefacient, attenuant, carminative medicines.—*Popular Science News*.

Water as a Disinfectant.

It is not generally known, perhaps, because it may not be always credited, that pure, fresh, cold water is one of the most valuable disinfectants, inasmuch as it is a powerful absorbent. Every sick-room should have a large vessel of clear water, frequently renewed, placed near the bed, or even beneath it. This not only absorbs much of the hurtful vapor, but by its evaporation it softens and tempers the atmosphere, doing away with the dryness which is so trying and depressing to an invalid, or even to persons in health, for that matter. It has frequently been shown, by actual experiment, that troubled sleep and threatened insomnia are corrected by so simple a thing as the placing of an open bowl of water near the sufferer's bed.—*Popular Science News*.

Barber-Shop Contagion.

More than one loathsome disease may be innocently contracted by frequenting a common barber-shop. Thus, ringworm and other similar affections of the scalp are not infrequently transmitted by the cushioned head-rest, brush, and comb, etc. If this head-rest were covered by a new piece of clean paper for the use of each customer, one great objection to common barbering would be removed.—*Popular Science News*.

Seventy-Nine is the Prime.

A man is as old as he feels, and a woman as old as she looks. The number of years is of less importance. There are old men, like the late Oliver Wendell Holmes, in whom youth—the youthful outlook—is perennial. A friend asked Lord Palmerston when he considered a man to be in the prime of life. His lordship immediately replied, "Seventy-nine. But," he added, with a playful smile, "as I have just entered my eightieth year, perhaps I am myself a little past it!"

Prophylaxis of Paludism.

Noel, after passing in review the successes and failures of quinine and certain of its salts in the prophylactic treatment of malaria, reaches the following conclusions:

(1) The prophylaxis of paludism by quinine is a demonstrated fact.

(2) There are no inconveniences attending the treatment in health, and quinine loses none of its efficacious properties in cases of intermittents.

(3) The hydrochlorate of quinine is the best salt to use.

(4) The drug should be taken each morning after arrival in the dangerous zone and during its passage.

(5) The minimum daily dose is 0.30 gramme. For troops on the march the pill form is preferable, but for those in camp it is better to use the medicament form.

Notwithstanding the efficacy of quinine, in the light of recent knowledge that malaria is water-borne, the true prophylactic is pure water.—*Journal American Medical Association*.

Those who "tote" Burdens.

Everybody notices the statuesque appearance and dignified carriage of the negro women who "tote" burdens on their heads. I once heard an accomplished artist say that the most graceful beings he ever saw were the negro amazons who carry coal in great baskets on their heads to load the steamers in the Harbor of St. Thomas, West Indies. There is something in the art of carrying a burden which gives a poise and a muscular movement that cannot be otherwise obtained.

How Mrs. Carlisle keeps Cool.

Mrs. Carlisle's prescription for enduring the heat is, first of all, not to worry or fret. Do all your work early in the day, and try to find some light employment, either physical or mental, to keep your thoughts from the thermometer, and how "awfully hot it is."

The wife of the Secretary enjoys her home to the utmost. She has the house rid of many of the heavier hangings and thicker rugs as soon as the weather becomes oppressive. The large, airy rooms are clad as far as possible in cool summer attire, and the intense heat of the mid-day is shut out.

Mexico as the Cradle of Man's Primitive Traditions.

The *Review of Reviews* for July, in an article on "Mexico as the Cradle of Man's Primitive Traditions," publishes some of the results of Dr. Augustus le Plongeon's remarkable researches in Yucatan. M. le Plongeon has spent twelve years in exploring and excavating the ruins of lost cities in that interesting country, and is thoroughly familiar with their antiquities. As a result of these investigations, he has become convinced that Yucatan is the long-sought "cradle of the human race." The *Review* publishes Dr. le Plongeon's speculations for what they are worth, but his laborious research is certainly commendable, and has brought to light much valuable material; it is to acquaint American readers with the wonderful remains of prehistoric civilizations that lie across our Southern boundary that attention is directed to his discoveries.

Why They Fell Dead.

The stories of bicyclists falling dead from their wheels, after too long or too rapid runs, are becoming altogether too common.

But perhaps the victims are some of those humped over, backboneless "scorchers," whose lungs are all gone through the senseless, and worse than senseless, habit of crushing them together when in active use and when they should have the fullest freedom. If so, they can be better spared than some healthier specimens of young manhood.—*Brooklyn Standard Union*.

The French Exposition of 1900.

According to *Le Progrès médical*, the organizers of this exposition have made elaborate preparation for the police and everything else, but have entirely forgotten the medical service. "They have," says our contemporary, "taken great care to protect the houses, but they do not concern themselves with men. Is it that they consider human life so small a thing, or is it because they fear to imitate the Americans?" It would plainly be a very good thing if they did. The medical service at the Chicago Exposition was acknowledged to be a model of its kind.

Relations between Delirium and Intelligence.

Eirondon maintains that the delirant power of the insane is in direct relation to their intellectual capacity. In order to have delirium with great and numerous ideas, they must have a sufficiently well-organized substratum of intellect. The lesser varieties of intellects have delusions and delirious manifestations of an elementary and uncomplicated character, formed from a few ideas and always expressed in the same monotonous fashion. On the contrary, the power of the superior psychical activity in certain intelligent insane enables them to bring calumnious accusations attested by a multitude of circumstantial details, the apparent correctness of which may lead to an error of justice. The diminution of psychical activity causes a closer union between the idea and the act, and a tendency to react from delirious conceptions by violent impulsive acts. In all cases it will be possible and useful for the alienist to seek for the intellectual substratum of the delirious person in order to better appreciate the dangers and the possibility of cure.—*Journal American Medical Association*.

Perspiration of the Feet.

Some people who suffer from this disease find it intensified by the secretions containing valerianic and other acids, which in severe cases produce a bad odor.

A good remedy is to wash the feet twice daily with soap and warm water, in which one ounce of washing soda to the quart has been added. Afterwards use cold water and dry thoroughly. Then apply the following powder freely between the toes :

Salicylic acid	1 drachm.
Chalk	2 drachms.
Powdered soapstone (talcum)	7 drachms.

This treatment and powder usually give relief by lessening the secretion and neutralizing the odor, at the same time overcoming friction and giving a sense of comfort to the feet.—*Popular Science News.*

Hygienic Foot-Wear.

Mrs. Lewis has furnished to the *Journal of Hygiene* some hitherto unpublished manuscripts of Dr. Dio Lewis upon foot-gear. The renowned hygienist said that the ankles should not be closely fitted, because a ligature about the blood-vessels, muscles, and tendons must produce weakness. Cloth uppers should be worn in warm weather, because the porous texture permits evaporation and cools the feet. Rubbers should not be worn except under most exceptional circumstances, because they produce tenderness. Walking he regarded as a most important means of health, and he said that shoes should be such as to permit easy walking and good circulation. So long as women walk on the same earth as men, Dr. Lewis said, their stockings and boots should be as thick and warm.

Dr. Lewis advised that children should be allowed to run in the garden without shoes in summer, "with their little feet in loving contact with the bosom of mother earth."

A New Cause of Baldness.

Dyspepsia is not only one of the most common diseases, but it is also one of the most common causes for the loss of hair. Nature is very careful to guard and protect and supply the vital organs with the proper amount of nutriment, but when she cannot

command a sufficient quantity of blood-supply for all the organs, she very naturally cuts off the supply of parts least vital, like the hair and nails, so that the most important organs, like the heart, lungs, etc., may be better nourished, and perform their work more satisfactorily. In cases of severe fevers one can readily see how nature economizes. If one will examine a hair very closely from the beard or head, it will be seen that it gives somewhat of a history of an individual during the time it was growing. It will be observed that it shows attenuated places, showing that at some period of its growth the blood-supply was deficient from overwork, anxiety, or under-feeding. Speaking of dyspepsia being one of the most common causes of alopecia, I will add that a very common cause of indigestion is irregularity of meal hours. The human system seems to form habits, and it performs its functions to a great measure in accordance with the habits formed. This seems to be particularly so in regard to eating, and you might say drinking, too. Your stomach gets into the habit of accepting your meals at a certain hour every day, and at that hour it is ready for it. If you, however, take meals at irregular hours you take your stomach by surprise, and it does not know when to expect a meal, and it is not in that state of readiness for prompt and perfect performance of its work. Be more careful about what you eat, when you eat it, and you will have less dyspepsia and fewer bald heads.—*Charlotte Medical Journal*.

Biting the Nails a Sign of Degeneration.

As the result of an inquiry carried out in several schools for both sexes, Dr. Bréillon is confirmed in the opinion which he has already expressed,—namely, that onychophagia (or biting the nails), and habits of a similar order, are generally connected with degeneration. The frequency of onychophagia is very variable in different centres. In some schools not more than two or three children out of ten are addicted to nail-biting, but in others, and especially in the city of Paris, the proportion of onychophagians is often very considerable, amounting in the aggregate to upward of a third of the total number of pupils that came under observation. A careful examination almost always brings to light the stigmata of degeneration. The children who indulge in the practice are commonly more puny than the others; and they frequently present cranial deformities, irregular teeth, abnormally placed and shaped ears,

etc. It has been noted by many teachers that the subjects of onychophagia exhibit a well-marked antipathy towards physical exercises, and more especially towards games involving sustained efforts. They write badly, and in general are remarkably deficient as regards manual dexterity. Perseverance is never observable among them, and for the most part they are unmanageable. In a word, when compared with other children of the same age, they invariably manifest inferiority in some shape or form. All teachers agree that the pedagogical methods usually employed are quite unable to effect a cure. In the majority of cases this can only be obtained by the use of hypnotic suggestions. Ordinary suggestion, in the waking state, is only occasionally successful. The habit of nail-biting sometimes persists to an advanced age. In our own practice we have successfully treated an old man 72 years of age, and a lady 56 years of age, who from earliest infancy had been incessantly the victims of onychophagia.—*Annales de Psychiatrie*.

Bread from Lupine-Seed as Human Food.

Weiske¹ recommends lupine-seed meal as a means of making bread richer in proteine and decreasing in cost. Being the richest of cultivated leguminous seeds in proteine, growing on light sandy soils, and utilizing the nitrogen of the air, it seems well adapted to this purpose. The meal can be mixed with rye-flour, or with the potato and rye mixture often used. The bitter, poisonous alkaloid of the seed must be removed, and this the author does by cooking the lupine-seed (yellow) in water for an hour, and then washing it with cold running water. The treated seed had an agreeable nutty taste and was not bitter. A quantity of this was ground, giving three products,—namely, flour (42.82 per cent.), coarse meal (42.60 per cent.), and bran (11.72 per cent.). The fine flour contained 49.25 per cent. of proteine, or 56.25 per cent. in dry matter, and was of a yellow color and pleasant taste. The two other products were adapted as food for stock. By removing the outer husk before grinding, a flour was obtained from disembittered lupine which contained 70.19 per cent. of proteine and 8.54 per cent. of fat in dry matter.

Bread was made from mixtures of the first lupine flour (with 49.25 per cent. of proteine), with rye meal, and with rye meal and potatoes, in different proportions, and for comparison from the

¹ Landw. Versuch Stat., 43, p. 451.

rye meal containing 6.81 per cent. of proteine. The following table shows the mixtures and the composition of the bread :

ANALYSES OF BREAD WITH AND WITHOUT LUPINE MEAL.

Kind of Bread.	Water. Percent.	IN DRY MATTER—				
		Crude proteine. Percent.	Crude fat. Percent.	Crude fibre. Percent.	Nitrogen, free extract. Percent.	Ash. Percent.
Rye alone	37.33	9.25	0.14	0.12	89.28	1.21
2 parts rye, 3 of potatoes, 1 of lupine flour	41.05	11.94	0.35	0.11	86.18	1.42
3 parts rye, 2 of potatoes, 1 of lupine flour	35.45	13.81	0.43	0.11	83.60	2.05
5 parts of rye, 1 part lupine flour	35.89	16.06	0.38	0.11	81.51	1.94
2 parts each of rye, potatoes, and lupine flour	42.08	18.88	0.70	0.22	78.65	1.55
4 parts rye, 2 parts lupine flour	41.68	21.69	0.65	0.22	75.63	1.81

The yellow color of the lupine flour gave a yellowish color to the bread. The bread from mixtures two and four was especially successful ; it had an agreeable taste and was in every respect palatable and good. The others were not all as good, that from six especially being heavy and less palatable. Bread from two and four was eaten by two persons in place of rye bread for a long time without tiring of it.

The lupine flour may also be used with potatoes in soups, etc., to advantage, and without danger of injuring the taste or palatability of the food.—*Exper. Sta. Rec.*

When a Child should Eat.

A child should have nothing whatever from the adult table before a year and a half at the earliest, preferably not until two years. Solid food should not be allowed until after a year, and then it should be bread, gruels, porridge, and possibly an egg ; but these should be prepared for it, and given to it by itself, not at the adults' table. To let a child come to the table is only to teach it to beg for things it should not have. Let it be fed before your meals, so that it shall not be tantalized at seeing you eat when it is hungry.

Cholera and Life-Insurance.

Dr. Oertel, the German bacteriologist, who died in Hamburg in September, 1894, from "laboratory cholera," had his life insured in favor of his mother. It will be remembered that the doctor contracted the disease in the course of his experiments, but it was never possible to exactly determine the manner of infection, either before or after death. The policy read that the amount was to be payable in case of "violent and sudden accident, independent of the will of the assured, and determined by an external mechanical cause." After the doctor's death the company refused to pay the policy, and the matter was referred to the Hamburg Court of Appeals, which has decided that "the multiplication of the bacilli and the effects which these produce on the stomach and intestines are to be regarded as a chemical and not a 'mechanical' action." —*Journal American Medical Association.*

What Physical Exercise has Done for the American Girl.

The name of American girl was once a popular synonyme for "nerves," ill-health, and all the ailments engendered by want of exercise, foolish diet, and irregular habits of life. The American woman was believed to be a pallid hot-house flower, brought up in a suffocating atmosphere where no sun could tan and no fresh air could blow the roses into her cheeks or invigorating life into her lungs. She was supposed to live on candy and novels, and too often to sink into a nervous invalid before she was thirty. When contrasted with the English girl, whose out-door life made her the picture of abounding health and rosy-cheeked energy, she suffered in the comparison. However exaggerated this popular opinion may have been—as popular opinions usually are—it undoubtedly had a foundation in fact. Our mothers certainly had no such ideas of out-door life and sport as we have to-day. The American girls of a former generation were not so addicted to the free, open-air life of the English girl, and the result was a naturally less robust physique and the preponderance of nervous over-muscular force. Not that American women were not strong with the power to endure and the grit to go through anything; in this they were not surpassed by any, but in so far as their strength was not muscular, but nervous, the wear and tear were greater.

A generation has sufficed to effect a complete change, and

our English cousins no longer hold a monopoly of out-door sports. Where thirty years ago the girl who went boating and fishing, climbing trees and jumping fences, with her brothers was looked upon as a tomboy, and regarded with severe disapproval, the reverse is now the case. Out-door life, delight in action, the spirit of sport, have taken hold of American womanhood. Girls of strong, active physique, erect carriage, and energetic spirit, delighting in tennis, riding, boating, walking, are now the rule; the feeble, in-door do-nothing is the exception, and the result is a tall, vigorous race with free step and cheeks aglow with the ruddy color of physical health and energy. Walk along the avenues of New York, Boston, Chicago, or any large city at the fashionable hours, and the procession of bright, animated girlhood which passes before one's eyes gives ample proof of summer activity in the country and city work, in gymnasium and riding-school. All over the country where there are men and money to start a club and create a sporting interest, the women also have their fair share of advantages, and in not a few cases their fair share also of work in setting the organization on foot. There are few country clubs, hunt clubs, tennis clubs, or other sporting clubs throughout the Union which have not a lady membership, and which do not recognize the claims of women in sport in a perfectly matter-of-course way; there are hardly any which have not at least a ladies' department, with its dining-rooms, reading-rooms, and sitting-rooms, where the wives and daughters of the members enjoy the social advantages of club life, besides the privileges accorded to them in the matter of sport; and in very many, especially of the smaller clubs, the ladies have been among the most interested and indefatigable promoters, sharing equally with the men in the government and other concerns of the club.—*Fortnightly Review*.

Don't talk to the Baby.

Mothers should be warned against the dangerous effects of constant prattle with their infants. In the gradual unfolding and growing development of these very sensitive creatures it would be wise to avoid adding to the almost innumerable hinderances that beset the young. The observance of a few simple precautions in the care of infants will, in all probability, protect them from many dangers to which they might otherwise be exposed, and result in permanent injury.

One of the philosophers of old defined life as "a constant struggle against the tendency to death," and at no period is this truth more prominently shown than in a young child before the physical forces have had time to impart strength sufficient to resist the natural enemy,—disease and death. The processes by which the brain of the infant is formed are comparatively slow and exquisitely delicate, and any interference with them will surely be followed by some ill-effect that may be either temporary or permanent, as the cause that produces is transient or lasting. Talking too much to engage the attention, with the hope and expectation of seeing some response, is a tax upon the young mind that may as yet be beyond its powers of resistance, and must, therefore, be harmful and dangerous. The doting mother, in her eagerness to see evidences of intelligence in her child, should know and remember that they will become more and more manifest as the organs of the brain are developed, and that these require time, and any effort to force them, will only overtax and have an opposite effect from that which she so much desires.

The expression "too cute for anything," which is so often heard in the nursery and out of it, to express the delight of doting parents at the performances of the little one, has cost many a young child its life, or afflicted it with one or the other of the many nervous troubles that the experienced eye of the physician readily sees, and often marks as the beginning of some disease that is gradually making its way to the brain and nervous centres. Then, again, the constant and perpetual prattle of the mother, and after her the hired nurse, sounding upon the keenly sensitive nerves of hearing, and wearing and exhausting the yet unformed and growing brain, to say nothing of the drum and trumpet and whistle which brother Charlie loves to beat and blow for the delight and entertainment of baby Mary. The organism is gradually being built up by the wonderful powers of cell-growth and the supply of nutrition in the food, to invigorate the vitality of those same cells. Many a young life has also been sacrificed by maternal and paternal importunity, and the growing intellect impeded and perverted by what is called "the forcing process." To see the boy at the head of his class may end in putting him at the foot of it, and all because the yearning parents have done too much talking and fondling.—*Popular Science News*.



How to Dispose of the Kitchen Garbage

from day to day, in a cleanly and convenient way and without extra cost—how to get rid of the ill-smelling, disease-breeding garbage-can or “swill”-barrel—has long been a problem awaiting a satisfactory solution.

To the housewife this would result in a material saving of time and labor, contribute essentially to the general cleanliness of the kitchen, and, in a word, remove one of the most vexatious obstacles to good housekeeping.

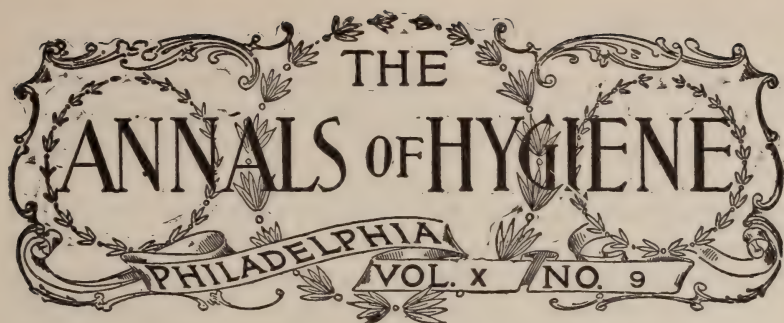
To the public at large the immediate disposal of garbage on the premises where produced would be of inestimable value from a sanitary point of view, and save to cities, towns, and communities immense sums of money now annually paid to scavengers to remove it.

For several years past efforts made in this direction in the introduction of various attachments to stoves and ranges designed to take care of such refuse, have met with little or no success, the apparatus devised having upon trial proved unsuitable and unsatisfactory.

The Household Garbage Carbonizer is a new invention which provides for the complete removal of all household waste (except ashes) in a simple and inexpensive manner, and has received the unqualified endorsement of high sanitary authorities, health officials, and the practical housemaid and housewife.

It proceeds by drying and carbonizing the garbage,—turning it into charcoal that will burn without noxious odors and add heat to the stove, or may be used to start a new fire, supplying the place of other kindling.

This process is accomplished without interfering in the least with the draught or the regular work of the range, with no loss of room for space occupied by the Carbonizer, and no extra fuel. See advertising page i of this journal.



COMMUNICATIONS.

Difficulties of Medical Health Officers in Dealing with Cases of Suspected Diphtheria.¹

BY D. E. ENGLISH, M.D.,

Millburn, N. J.



ONE of the great difficulties standing in the way of the medical health officer is the habit of some physicians of not reporting or of concealing cases of infectious or contagious disease. With the sanitary arrangements now in vogue in all cities and large towns, epidemics of contagious disease would be almost impossible if every case was promptly reported to the health authorities. The mischief is done by those cases which are either not seen by the physician or not reported by him. The physician fails to report sometimes through carelessness or wilful neglect, but more often on account of certain diagnosis. The latter reason is especially true in cases of diphtheria. The patient has a slight sore throat, does not seem to be dangerously sick, and the doctor does not like to put the family to the trouble and expense of quarantine and disinfection when he does not feel certain that he is dealing with a case of true diphtheria. If he does report the case, and the nature of the sickness remains in doubt, the patient at no time being seriously sick, he will be very apt to lose the patronage of that family. Under these circumstances the physician should be recompensed in proportion to the risk he is forced to assume by reporting the case. The majority of communities

¹ Read before the Orange Mountain (New Jersey) Medical Society, July 12, 1895.

force the doctor to report by fining him heavily for neglecting to do so, and rewarding him with sufficient money to pay for the postage-stamp when he does. This is wrong principle. It assumes the physician to be a rascal, who must be carefully watched and forced to do his duty. If the law was exactly reversed,—*i.e.*, if the doctor received twenty dollars for each report and was fined twenty-five cents for each neglect to report, there would soon be no more epidemics of diphtheria. In other words, if the physician was properly protected in the performance of his duty he would never neglect to perform it thoroughly.

A second difficulty met by the health officer is the verification or contradiction of the attending physician's diagnosis. This is often a delicate matter on account of the inexactness of medical science. The officer has, perhaps, less reputation as a diagnostician than the attending physician. He does not like to contradict him unless he is entirely certain of his own diagnosis. On the other hand, he wishes to give the community at large the benefit of the doubt.

The family naturally wish the officer to declare the disease non-communicable, and assure him there has been no exposure to infection or contagion, that the patient is not very sick, and that it is really not worth his while to see him at all. In almost the same breath they will inform him that the doctor has ordered that the patient is not to be seen by any one, not even by the health officer, as it might have a very bad effect on him to be disturbed. In suspected diphtheria it has become customary to rely on the bacteriological examination for positive diagnosis. The case is quarantined till the microscope reveals the presence or absence of the Klebs-Löffler bacillus, and then treated accordingly. This shows a beautiful faith in this particular microbe as the cause of diphtheria. Two years ago I possessed this faith, now I am in doubt. According to reports in the medical journals, the bacillus is found in healthy throats, in unhealthy throats that have no clinical resemblance to what we were in the habit of calling diphtheria before we knew of the germ, and in throats that any doctor would pronounce diphtheritic. On the other hand, the germ seems to be absent from some throats that appear by every clinical sign to be the seat of diphtheria, and these cases seem to infect others, and are sometimes fatal. If we are to believe the Klebs-Löffler bacillus to be the cause of all cases of diphtheria, then the definition of diphtheria should be,

“a contagious disease of the throat, differing from other similar contagious diseases of the throat in being caused by the Klebs-Löffler bacillus.”

A third difficulty to be surmounted is the enforcing of proper quarantine. In a few instances the instructions of the health officer are obeyed to the letter and all goes well, but in the great majority of cases they are partially or entirely ignored. Relatives and near friends are allowed to see the patients, books are sent in and returned, food delicacies are accepted and the dishes returned without proper disinfection, and the convalescent patient is allowed to write letters that are sent by post. The health officer must indeed be very active and watchful if he would succeed in enforcing absolute quarantine. People object to being ostracized, do not like to consider themselves a source of danger to their neighbors, and utterly refuse to proclaim themselves “unclean.” It is entirely right and proper for other people to be compelled to do these things, but for them, with their careful and cleanly habits, it is utterly absurd.

A fourth problem is to trace the disease to its source. It is often necessary to follow the patient's movements through every hour of his life for days past; to know with whom he came in contact; to find out what clothing, books, etc., have been brought into the house, and where they came from; to examine the milk and water-supply; to inspect the premises, paying especial attention to the kitchen, sink, and the cellar; and, not the least important, to beware of theories advanced by interested parties. This is the most interesting part of the health officer's work, for it arouses the instinct of the hunter or detective, which every man possesses in a more or less latent state. All sorts of obstacles will be thrown into his way, intentionally or unintentionally. The truth will be stretched by interested parties until it is unrecognizable; memories will be filled with convenient blanks. The patient's family is sure he caught it from Mr. A.'s children, who have not been sick at all, and conveniently forgets the fact that he played with Mr. B.'s children on the same day that they were taken sick. A little diplomacy reveals the belief that it was beneath his social position to play with Mr. A.'s children, therefore he must have received his diphtheria from them; while it was an honor for him to be allowed to play with Mr. B.'s children, therefore no possible harm could come from it. The general public is a little apt to be illogical in sanitary matters, and the

evidence as to the source of contagion has to be very carefully sifted before it is safe to arrive at conclusions.

The matter of disinfection also presents difficulties, but the officer by this time generally has such firm ground to stand upon that he can insist on what is necessary. Nevertheless, it is entirely impossible to convince some people that it is better to destroy five dollars' worth of property than to run the risk of disease and death, and there will be hard feelings in the matter. And it is next to impossible to get landlords of tenements and cheap apartments to make proper repairs to plumbing and drains. The only way to accomplish this in many cases is to have the work done at the expense of the local government, and sue the landlord for the After he has been treated in this way twice he usually obeys the orders of the health officer. But it is necessary to be able to prove in court that a nuisance existed, and that the repairs were not more expensive than necessary.

Probably the most difficult thing of all for the medical health officer to accomplish is to do his whole duty without making enemies or losing practice. This very few, if any, accomplish: it is about impossible; for this reason the officer should be paid enough salary to protect him from losses in this way, as well as to pay him for the hard and disagreeable work he has to do, and for the exposure to dangers that may cause disease or death in his family, or end his own life.

Nearly all of the difficulties encountered by the medical health officer in dealing with diphtheria or other contagious or infectious disease are due to ignorance on the part of the general public. The remedy is education, and as a health officer I wish to appeal to my professional brethren for help. I wish to ask every one of you to engage in a campaign of education against epidemic disease. Let every physician constitute himself a bureau of general information on sanitary matters. Let him be a distributor of instructive literature on these subjects. Very few people outside of the medical profession know in what a multitude of ways contagion may be carried, or in what kinds of filth disease-germs grow most rapidly. They have wrong ideas as to what is and what is not filth. They do not know the value of sunlight and fresh air as disinfecting agents. They need teaching, and no one can teach them so well as the family doctor. This is preventive medicine. This is the kind of advice the physician will be paid for in the future, when he has become more a sanitary specialist than a curer of disease.

Filth.

BY GEORGE TROUP MAXWELL, M.D.,

Jacksonville, Fla.

YOUR Journal is always a welcome visitor. While many of its contributed papers are entertaining and instructive, permit me to say that the editorials are generally pre eminently practical and useful.

As I took occasion once to criticise adversely, you will doubtless believe me sincere when I declare that there is much to commend and little to condemn, and that it gives me pleasure to applaud.

Your article on "Sewer Gas," in the August number, is a solid chunk of wisdom. The ideas are based upon experience and common sense, which is another name for science, and are so clearly expressed as to be intelligible to the most obtuse.

How true it is that "pure water will not produce typhoid fever, but if with this previously pure water we introduce a number of the germs of typhoid fever, the water becomes the means of causing the disease. Sewer gas—devoid of particular specific germs—will not cause particular specific disease ; but sewer gas, even without these germs, will cause a departure from the healthy standard."

No illustration and statement of an important fact, which ought to be generally known, can be more forcefully and lucidly declared.

And what you say of water and of sewer gas is equally applicable to that bugbear of the average health official and writer upon sanitary subjects—filth. In one of the earliest numbers of the ANNALS, Dr. Wood, in a paper read before the Pennsylvania State Board of Health, made the fact of the innocuousness of filth, *per se*, as a disease-producing factor, so transparent that there was not, so to speak, "a peg left to hang a doubt upon."

But, while it is true that filth cannot cause specific disease, no one will question the propriety of removing it from all premises and streets ; for it is an offence to common decency, and is therefore a nuisance.

Distinction should be drawn, however, between the effect

upon health of ordinary filth—that is, decaying organic matter—and that which is caused by human excreta. It is well known that the excreta of each species of animals is poisonous to the individuals thereof.

Every physician knows how deadly is uræmic poison. Failure of the kidneys to excrete urea and other poisons is promptly fatal. This is the most frequent cause of death in yellow fever.

And though not so quickly fatal, the poisonous character of the fæces is well known.

“Bouchard has shown that normal fæces contain a highly poisonous substance, and proposes the term *stercoræmia* for that condition which results from arrest of excretion from the intestine.” (Vaughan.)

I have for years declared that the condition known as “biliousness” is caused by stercoraceous absorption from the intestine, and that the relief afforded by mercurial purgatives is due to the thorough evacuation of the leucomaines generated in the intestine, rather than to the imagined action upon the liver.

“Bouchard estimates that the amount of poisonous alkaloids formed in the intestine of a healthy man, each twenty-four hours, would be quite enough to kill if it was all absorbed.” (V.)

By this view of the subject the complete removal of the “wastes of living” from dwellings and cities by a good system of sewerage, becomes apparent; and the lowering of “the standard of health” by the gases eliminated by putrefaction, in sewers, is satisfactorily explained.

Influence of Mind over Body.

LUELLA COOL, M.D.,

San Francisco, Cal.



WHAT a wonderful influence the mind has over the body and how many deaths result from the same.

Some five years ago, several physicians gave me a few months to live, as I had every indication of quick consumption, being brought on by bronchial pneumonia for three winters.

I was given everything to arrest the dreaded disease, hot in-

halations of air, hypophosphites, cod-liver oil, and creosote, and everything conducive to effect a change and cure, but to no purpose. I weighed about ninety-six pounds; temperature $99\frac{1}{2}^{\circ}$ F.; and increasing expectorating and violent coughing spells; I was at the time also having a great deal of trouble and worriment.

I finally made a change in every respect, left Oakland, noted for its healthy climate, to come to the damp, foggy climate of San Francisco.

My circumstances being such I could not continue my doctoring, changed private life to one of continual employment, and shutting up the pages of my past unhappiness started out anew to work for the six months I was allowed, and at that end expecting death.

When I started to earn my own livelihood, one prayer arose, that if there is a God in heaven, oh give me my health and I will believe.

Devoid of means to procure medicines I was obliged to do without. I began to improve slowly but surely, and now can turn the scales at 125, more than I ever weighed during my life; no cough and no indications of any pulmonary trouble, my mental worriment gone, and feeling happy and at peace. I am the picture of health. A few days ago I met one of the physicians who said I could not live, and upon my going up to him he could not believe his eyes, and exclaimed, "You —, and looking the picture of health? What has caused this miracle?" My only answer was, "Doctor, I am contented and happy, my mind is at peace and rest, hence the change." So I believe the mind influences the body to a great extent and hastens death and disease.

When is the Climax of Maturity Reached?

(Information wanted.)



AM one who believes that prefatory apologies are unnecessary. May I submit the following?

Do the shoulders broaden after one has ceased growing in length? Does the clavicle lengthen?

Does the circumference of the head increase? Do the bones in general get larger, or is the larger appearance of frame after maturity merely a fleshy addition?

Take a young man 22 years of age, six feet in height, and weighing 150 pounds; will he get broader, heavier, and will his dimensions of head increase after that age? If so, why?


When I was 17 years of age, my height was but five feet eight inches. Four years have passed, and during that time I have paid considerable attention to my physical parts. To-day through physical culture am about six feet in height, and where I only weighed 117 pounds then (four years ago), I weigh 150 pounds at present. However, this is far from the proportions that I read a man of my height should be characterized by. None of my measurements are equal to a single item in the "tabulated matured measurements of a man."

If I am not intruding, could you not give us a communication through the columns of the ANNALS OF HYGIENE in When is the climax of maturity reached?

W. S. R.

Vegetables Poor in Starch.

(Information wanted.)

ILL you kindly inform me of the names of those vegetables that contain the smallest amount of starch? Are there any entirely free from starch? I am interested in the subject, and have hoped to see something brought out in your magazine concerning it, but as yet have not. I am under the impression that to the life of a vegetable some amount of starch is necessary, and have an idea that it settles to the bottom of a plant, consequently a potato and such vegetables as mature in the ground have the starch, those growing more rapidly above ground do not have the settlement of starch. Will you kindly inform me how far I am right in this theory, and very much oblige,

EMMA N. EBERHARDT.

97 CONGRESS STREET, NEWARK, N. J.

The Stable for Papal Bulls.

An American, who was travelling in Europe, when he visited the Vatican, the residence of the Pope, asked to see the cattle-pens. The attendant was very much surprised, and said, "Cattle-pens? Why, we have nothing of that sort, signor." The response was, "Where in the world do you keep the papal bulls?"

Menstrual Disorders in School Girls.¹

BY J. T. WILSON, M.D.,

Sherman, Tex.



A DISTURBANCE of the menstrual function in girls who are attending school is a frequent occurrence. More specially do we find this the case with girls who reside at the boarding schools; and the most frequent character of the disturbance is dysmenorrhœa. Next in frequency is a suppression of the flow. While menorrhagia is comparatively rare at this age, yet it does sometimes occur and may be severe.

The physical development of girls previous to puberty is very commonly neglected; but little attention is given to the proper selection of diet, exercise, clothing, and sleeping hours. To this neglect is due, in many cases, these functional disorders which too readily give rise to well-established and permanent diseases.

If the physical system of our girls was expanded by a healthy growth in the three or four years previous to puberty, and the same length of time following it, their minds would receive such culture as would conduce to healthy development of the brain and a training that would tend to systematize and fix habits; at the critical time of puberty the epoch would be established with less shock to the system and without a nervous explosion; we would have fewer sickly, delicate girls, less hysteria, insomnia, and disturbance of the menstrual function. If under trying circumstances these troubles should arise, there would be less difficulty in certifying them.

In our boarding schools, even in our best and richest colleges, are found a considerable per cent. of pupils suffering from some form of menstrual disorder, with morbid or lost appetites, constipated bowels with its frequent accompaniment, dyspepsia and insomnia to a more or less degree, headaches, backaches, sallow complexion, flabby muscles, an acne eruption, anæmia, and leucorrhœa.

There is a combination of causes for this state of health. It is generally about the age of puberty that most girls take up their

¹ From the Texas Sanitarian.

residence at boarding schools. In the majority of cases there has been no attempt to develop their muscular system, no control of appetite, no selection of diet. They have been permitted to eat anything to which they had taken a fancy, and rarely dressed with that degree of judgment necessary for their protection and conducive to health. They have had no instructions in female hygiene, and though they may appear rosy and healthy, they do not possess the muscular solidity, the mental control, and the ready adaptability to surrounding circumstances so necessary to resist the mental and physical changes through which they must pass. There has been no restraint upon their actions and no systematizing of their habits.

We should not forget that the nervous system maintains over all the organs of the body a dominating and controlling influence, and is brought into its greatest activity about the age of puberty. When the girl begins to develop, her physical and mental being changes, as well as her character and habits; her emotional system is most impressionable.

The out-of-door sports and romps to which she has been accustomed are prohibited; she is told they are not suited to her age and position, hence she must be confined in-doors and her complexion bleached; that her figure must be changed, and she is moulded out of shape with a tight corset, diminishing her size to one-fifth or one-third. Around this are tightly tied and hung several heavy skirts, compressing the heart and pushing it up out of place, squeezing the liver, interfering with the portal circulation, displacing the stomach, disturbing the digestion, dragging and pushing down the abdominal and pelvic organs, producing congestion and displacement, interfering with their functions, arresting the development of the body, embarrassing respiration, and productive of hysteria. She assumes unnatural postures, abnormal gaits, and awkward and painful movements of the body generally; her feet are encased in shoes ill-shaped and several sizes too small.

This is the most important period of her life, a time to which she is subject to most changes, the system is more susceptible to disturbing influences. It is a time when trivial impressions may leave indelible tracings, when the foundations of future health or disease are laid, and thus she leaves her home, probably for the first time, to remain away from her mother's oversight, and enters school. Here she meets changes new to her on every hand; she

is among strangers, thrown, to a great extent, upon her own responsibility, is subject to the routine diet, badly cooked it may be. Crowded into a small, ill-ventilated room with several companions, begins her daily life, having assigned to her from six to ten studies in addition to music and art. She is required to rise at an early hour for breakfast, then the greater part of the day is spent in the recitation-room and study-hall with several hours at the piano—which is nearly as bad as operating a sewing machine—inducing ovarian and uterine congestion. She neglects her daily functions, and then begins her troubles.

Our American girls are pampered and petted and spoiled from their very infancy, and at the critical time of life, with all the disadvantages of dress, diet, habits, impatient of control and ignorant of the functions of their sex, or have been taught too much and misinformed about them, are rushed into society or placed in boarding school and crammed with the full curriculum of the college. Her parents and friends expect her to graduate with all the honors in an incredibly short time. She must enter the contest for all medals, must be most conspicuous at all the many daily and nightly exhibitions during commencement week. This nervous strain, rush, and mental activity, the constantly conflicting emotions, the continual brain tension from all this excitement will react on the other organs of the body, and the breakdown will be very apt to come sooner or later in most cases. The foundation is thus laid for a life of invalidism. The tissues and ligaments of the uterus are relaxed, and there may be displacement, and the nervous tension may cause hyperæmia. The consequences are weak backs, diminished muscular tone and nutrition, digestive ailments, loss of or morbid appetites, habitual constipation, cold feet, painful or disordered function, or complete suppression. So common is this cessation in boarding schools that teachers, in many instances, look upon it as immaterial and unworthy of consideration, and are ignorant of the dangerous sequences. Then follows a train of a varied character of nervous symptoms and hysterical attacks. After all this mental strain, all this dash and emotional excitement, all this cramming of the ordinary literature of the day, of the classics, of music, and painting, and elocution, and almost the entire day confined in class-rooms, what have we left? In many cases almost a physical wreck, a mental egotism, and a superficial, impractical education, illustrative of the fact that "a little learning is a dangerous thing."

Improper clothing, badly-cooked food, insufficient sleep, too many yours at study, too many hours shut up in the class-rooms, and thumping away at the piano with hands and feet, while the nervous system is strung up on a high key, with the effusive sounds of the instrument vibrating through the brain, and the teacher's voice shouting out the numbers and making a correction; with a neglect of or ill-advised physical culture, too little recreation; at the end of the term a week of exhibitions, of concerts, of late hours, and loss of sleep, requiring renewed exertions and borrowing a stimulus from the increased excitement, with which to keep up. Is there any wonder that discordant notes should creep into the execution of an operatic piece? Is there any wonder that menstrual disorders, nervous prostration, and neurasthenia should result?

And when the time comes for her to assume the duties of true womanhood—to become a mother—she is in no condition to pass through the ordeal of that physiological process with ordinary ease and safety; is in greater danger of suffering from the accidents consequent upon it.

The peculiar organization of woman is too much ignored, and she herself is not taught the necessity of care and discretion at her periodical epochs. At the schools too many studies are imposed upon them or permitted at their own solicitation. The number of years set apart for the finishing of the course are too few. During the term they spend too much time in-doors, striving to win the medals, to keep up with her more gifted sister in literature, art, music, etc., stealing the necessary hours from sleep, till past the midnight hour, straining her eyes by a dim light, half concealed for fear of being discovered, preparing for a brilliant exhibition of her talents at the commencement exercises. All this cramming and excitement, pomp and parade at the public commencements, are not so much the fault of the schools as it is of the parents who demand it, eager to see their daughters take a conspicuous part in the *rôle*; and, yielding to the gratification of the parents, these daughters spur the jaded and overworked system to excel in their special parts, and this at the expense of nerve force and body waste.

When this change in the young girl is established—sometimes with an effort—usually no notice is taken of it, no modification made in the habits and modes of life; it is always a delicate period, these monthly returns; always a time of some excitement and weak-

ness, and change of disposition, but ordinarily no rest, mental or physical, is allowed, no recreation, no quietude, but little heed given to this periodical act of nature's expression of womanhood, no attention paid to the susceptibilities and mental perversities that accompany it. It elicited the following expression from Professor George J. Engelmann, in his presidential address to the Southern Surgical and Gynæcological Association: "Among our social customs, there are many which have wrought injury to woman. I cannot even touch upon all these. There is but one of which I shall speak, and that the most dangerous of all, more or less underlying all other causes of ill-health. It is the ignoring of the functions of woman by woman, by the mother, and her ignorance of its import."

The digestion of a majority of school girls is more or less affected, the diet is not always selected, frequently cannot be with the care that it should be, and often the cooking is most lamentable. Too much fried grease, hot bread, tea and coffee, rich pastries, and too much sweets are allowed to supplant the well-cooked, more easily-digested, substantial articles of food, with good nourishing qualities. The stomach is turned into an experimental chemical laboratory, into which a great variety of incompatible substances are emptied to insult or vex that much-abused organ. When the time comes round for her periodical function, her brain is overworked, her body is exhausted, her nervous system irritated, and her flow comes on with much effort, amid pain and distress, or fails altogether. She is without the care, advice, sympathy, and soothing encouragement of a sensible mother, so grateful and helpful. Is it any wonder that the poor child gets homesick, is unable to sleep, and sometimes worries and frets herself into a fever? After the commencement, the graduate returns home, her brain crammed with literature, her mental vision sated with art, her ears ringing with music, her body sickly, puny, and weak, with its flabby muscles, its overstrained nervous system, its digestive disorders and menstrual disturbances, unfit for the duties of domestic life, unfit for the high mission of womanhood.

Very rarely do we hear of any trouble of the sexual system until after the period of puberty, but the foundation for such diseases is often laid in early life, by the neglect of the physical system and the necessary training. There is often an hereditary feebleness of body that should be trained, developed, strengthened, and prepared for its natural functions.

There is not necessarily organic disease of the genital system in all cases of menstrual disorders, though I believe the rule will prove some pathological condition of ovary, uterus, or vagina. I have seen girls of healthy appearance, of good color and muscular development, enter school with a history of good health and regular function, who, after two or three months, would suffer from amenorrhœa or dysmenorrhœa, without losing flesh or color or appetite, and without symptoms of disease of the genital organs, as ordinarily manifested, but upon close study of their characters and dispositions, they would be found to be excitable, impressionable, and probably suffering from constipation. I have formed the conclusion that undue expenditure of nerve force, the mental tension, together with the want of fresh air, sunshine, and agreeable recreation, were the principal combined causes in these cases.

We can frequently trace amenorrhœa to an injudicious bathing of the feet in cold water, getting wet, or changing flannels too early; in truth, any of the menstrual disorders may be caused by these, and neglect of out-door exercise and physical development, over brain work and excessive development of the nervous system, shock, improprieties in dress, imprudence during menstruation, insufficient sleep, habitual constipation. I speak principally of the condition and causes affecting girls while at school.

Many of them readily develop some of the neuroses, which are manifested in different ways, and are sometimes the only objective symptoms of an ovarian or uterine disease. They begin to fail, lose appetite, grow pale, distressed by headaches, spine-aches, a sense of exhaustion, and disordered functions. It is sometimes difficult to differentiate between a pathological state and a reflex neurosis.

The treatment of these disorders, under surrounding conditions, is no simple matter, as has been indicated above. The treatment ought, in fact, to begin at home, before the age of puberty, before the patient enters a boarding school, by instructing the mother in the necessary female hygiene for her daughter, in the care of diet and digestion, in suitable dress, in muscular development, and especially should she be trained to a sufficient moral restraint, that her own will power can be exercised so much to her advantage, and while teaching her how to care for self, and its importance during menstruation, yet lead her away from all other thoughts of the sexual system, keeping her a girl

as long as possible ; insist upon the great necessity of following well-established rules during her absence from home, so that the changes may come and find a healthy, well-developed physical system, prepared to carry on the new function. It ought to be remembered that a large number of girls inherit a tendency and a predisposition to these functional disturbances, and uterine and ovarian disease, and this remembrance should be turned to good account by training and moulding the physical system into strength, symmetry, and beauty ; not a grace and beauty that is temporary and flitting, but one that is solid and permanent. It is our duty to take an active interest in the care of the physical life of girls from infancy, institute a reform in the present modes of rearing and educating them, and rescue them from the physical degeneration that we unhappily so often meet with. It is the greatest and highest duty of the family physician to institute this early hygiene of girlhood, and guide them into healthy and vigorous womanhood. There is no glamour in this part of his work, no flashing of the plumes of success in the gradual triumph of persevering and continuous effort, as with the fascinating results of the gynæcologist's glittering and mutilating knife, but with vigilance, patience, and perseverance, brilliant results will be obtained.

The boarding schools, with few exceptions, are not generally prepared to give such patients the care and attention the condition demands, nor can they make such preparation until parents are taught the necessity of it, and are willing to co-operate and accede to the requirements expedient for good health.

The best results are obtained from complete rest at this period, diminishing, or cessation of the studies and study hours, absolute suspension of piano practice, most of the time spent in a recumbent position, in a quiet, well-ventilated room, with the best of sanitary surroundings. This period of rest, at the critical time, is of prime importance. A good purgative, to thoroughly empty the bowels, a more delicate, nutritious diet, that digestion may not be labored. These measures should anticipate for a day, if possible, the expected flow ; she should be warned against and protected from exposure to cold, from cold baths and injudicious change of clothing, kept away from emotional and nervous excitement. Nerve sedatives, with a proper degree of caution, are important ; of these, the bromides take highest rank. Valerianate of ammonia, cannabis indica, hyoscyamine, apiol, all have their

places, and are important aids to tide over the period. The preparations of opium are too dangerous to tamper with. There is, at this time, a depraved or altered mental condition, which it is not well to pass unnoticed. She should be kept tranquil and soothed by a kind but firm hand. When the patient is feeble, diffusible stimulants are very valuable. Ammonia and camphor do good service. Alcoholic stimulants are sometimes necessary, especially in cases of menorrhagia, when considerable blood has been lost. The effects of massage, when the patient is kept at rest through her period, acts both as a sedative and tonic, and is of inestimable value, healthful control of the nervous influences, warm baths, mustard plasters, hot applications to the pelvis, feet, and counter-irritation to the spine, plenty of sleep, and kept in a cheerful mood.

Between the periods she should be under constant surveillance, and great care should be taken of her health. If the tongue is coated and digestion is bad, nothing can be done until this state of affairs is corrected, especially should the habit of chronic constipation be overcome. In malaria, quinine, iron, arsenic, and mercury in suitable doses, at proper intervals, when the system has been prepared for them, are the remedies *par excellence* in most cases. Suitable clothing is of much importance; in winter woollen shirts, and especially drawers, should be insisted upon to protect the abdomen, pelvis, and thighs; this garment is much neglected; the feet should be kept dry and warm. Too many studies should not be required, nor too much piano practice. She should not be allowed to sleep in an over-crowded, ill-ventilated sleeping-room, the heating of which is so often neglected, sometimes too hot and then too cold. Too much stress cannot be laid upon the necessary out-of-door exercises, recreation and amusements. So also should too violent muscular exertion be condemned. Regular bathing and friction of the entire body in order to keep the skin in good function, and as a revulsive, is a valuable daily luxury. She should, in fact, have the advantage of all hygienic measures that can be accorded her.

So intimately connected is the nervous system with the sexual organs of woman that a disturbance of one will make a powerful impression upon the other, but in the treatment of these cases we should be careful to avoid adopting extreme measures, endeavoring to distinguish between a central lesion and a reflex neurosis. The prominent symptoms of one system will some-

times mask those of the other. Drugs hold a subordinate position in the treatment of these troubles. The so called emmenagogues are comparatively infrequently prescribed in the present day. The hygiene, the general care of the girl's health, the attention to all the details in this regard, the building up and developing her muscular system, the prevention of too much mental work, especially as regards its character; sufficient open air exercise, recreation, amusements interspersed with mental labor and other duties, a healthy moral restraint and favorable social surroundings are all important points in the treatment of these menstrual disturbances, and should be insisted upon when at all practicable. Well-selected tonics and alteratives sometimes with cod-liver oil are important aids. This is a subject to which too little heed is given, and our girls are sometimes greatly neglected. The prosperity and happiness of man and the welfare of the nation demand that the profession should take an active part in the rearing of the female child, and by instructing mothers in the hygienic care of their children, the proper methods of developing their bodies, prevent the functional troubles that lay the foundation for a life-long invalidism by establishing permanent diseases of the sexual apparatus. There would then be less use for the gynæcologist with his 500 or 1000 laparotomies with the uteri or appendages on exhibition in his museum; there would be fewer weakly neurotic children with their hereditary predisposition to countless troubles peculiar to their sex, and menstruation might be what it was intended to be,—a physiological process and not a pathological condition.

DISCUSSION.

Dr. Landon Carter Gray, of New York, was the next speaker. He said that Dr. Wilson's paper deserved full recognition. It was a splendid paper. He dwelt especially on the courage of the author in making public matters which every medical man knows have existed, but which few have had the courage to put into definite assertions or to publicly announce. Dr. Gray said he thought that the medicine of the future will largely consist of understanding the physiology of different kinds of human species. If we could keep men and women clean, say wash them thoroughly twice a day, give them that proper nourishing, digestible food that their needs call for, give them eight or nine hours' sleep every night, give them plenty of exercise in the

open air and in the sunshine, the microbes of disease, although they might still be floating around, would largely go out of the business. For that reason, Dr. Wilson's paper was more useful than the talk about new remedies, and how to apply them. It recommended preventive measures, and that is what is wanted. Dr. Gray said in his experience, he had as patients many young girls suffering from nervous troubles, and he agreed with Dr. Wilson, that girls were not taught self-control. Boys, he said, were corrected early in life. Parents all over the world slap them or knock them down, and, as they used to think in the East, they would shoot them in Texas, but with girls it was different. The little wayward acts of young girls are not to be rebuked. Fond parents, instead of reproving them, would encourage them, and think they were acting in a cute and cunning way. The mothers were greatly to blame. They did not know how to control their daughters, nor how to bring them up. The consequences were only too apparent. A girl taken from her home, where she could do as she pleased, and from the ceaseless hours of study, and placed in charge of a practical and trained woman, a nurse, far from her home influences, would change so rapidly that one would hardly know her.

The present system of the young girl is absolutely faulty. Dr. Gray said he had never found that more than two or three hours of study could be accomplished by the most robust brain. Give the young girls two or three hours' concentrated study, and then turn them loose into the fresh air and sunshine like young colts are. Parents might be troubled with children at home, and would send them to sit hours in a close, ill-ventilated school-room simply to get them out of the way and have peace at home. Such parents were not doing their duty to their children. "These are things," concluded the speaker, "that are not taught in text-books, but then the writers of our text-books are afraid to tell the simple, plain truth about mothers like these. It takes the courage of men, such as Dr. Wilson, to make it known."

Dr. Richard Douglass, of Vanderbilt University, who spoke next, said he accepted and indorsed everything said by the previous speaker and by the author of the paper. The cause of the troubles, he said, lay principally with the mothers of girls. He indorsed strongly one idea that was conspicuous in the essay of Dr. Wilson, and that was that a girl's attention should from early childhood be diverted from herself. She should not be allowed

to get a knowledge of matters of which she should know nothing for some years.

The chairman of this section, Dr. J. E. Gilcreest, of Gainesville, then read his report. In it he said, "The increase of female diseases and infirmities is recognized by all observing gynæcologists. The question now arises, What can we do in the way of preventives? This has often been spoken of by medical men, but no means have been devised by which any action could be taken. Much has been said about the faulty methods of our system of education. All agree that the average school girl is crowded with brain work, and her physical training, which is calculated to make her a strong and healthy woman, almost entirely neglected. See the graduating classes of our high schools, seminaries, and boarding schools, and a large majority of them come out ready to go in the hands of the doctors. These evils are too well understood by the profession to require further comment. I think our efforts should be to educate parents, teachers, superintendents, and school boards to the necessity of more physical and less mental training in young girls. Unless something can be done in this direction, the gynæcological field will become more and more fertile. The majority of girls are anxious to graduate young and get out of school, and this is encouraged by the advocates of the so-called high culture, and they champion the idea of the intellectual equality of sex, and the result is that too much brain work and too little body work is the great evil of our country. The fact is our girls are over-educated. Forcing that portion of the brain which is the seat of our intellectual faculties, and especially during its growing and nascent stage, stunts these centres, which preside over animal life. Thus, energy is withdrawn from the reproductive centres and physical development arrested. We are consulted much more frequently by the champion of classes than any other member of it. When I hear of a girl that stands highest in her class, and graduated with the highest honors, I look for a physical wreck, and generally find it. We should advocate and do all in our power to lengthen the time of educating girls, and give due attention to physical training during early school years, and not sacrifice their health on the altar of high education. If we can do this, we will see young women who are more able to cope with the duties of after life. One of the greatest evils among our young married women is the unwillingness to become mothers."

The Educational Aspects of Physical Training.

BY W. A. BROOKS, JR., M.D.



ANY of the best minds of the intellectual world are devoting their energies to promoting the advancement of educational demands. It might well be asked, What bearing has this upon the subject of physical training? The answer to that question is embodied in another, What is going to determine the limit of educational demands? Obviously they are limited by the ability of the individual to grasp and to understand, and the amount of time which can be devoted to study. Ability is a personal equation. Time is limited by the duration of life.

What is it which enables a man to do his work properly, if it is not physical condition? And what is it, barring accidents, which determines whether a man lives to be seventy or dies at forty, if it is not his surroundings and the care which he takes of himself? The standard of higher education can be raised until the limit of mental and physical endurance is reached. As a greater demand is made, it can only be met by carrying with it a provision for the building up of endurance.

But as yet, physical training, the only means of building up endurance, has never received more than a passing notice from the majority of the learned men who stand at the head of our institutions, and who map out and direct the work of those who are under their immediate control. While they carefully direct mental exercises, they utterly ignore physical demands. They compel students to come up to a certain intellectual standard, taking it for granted that they are in a sufficiently good physical condition and know how to keep so. To be sure, they may provide a gymnasium and instructors in physical culture, but whether the individual takes advantage of these opportunities concerns them little and interests them less.

At the expense of the government, a chosen few are educated to fill positions in the army and navy. The government does not propose to have its money wasted, and so, in order that the students at these institutions may be physically able to do their work, both

¹ From the Boston Medical and Surgical Journal.

before and after graduation, there is a fixed standard of physical condition and an ample provision made for physical training.

At some other institutions of learning, the students upon entering are required to bring a certificate of good health. After entering there are generally no further requirements either as to condition or training, except that by some means or other they must be able to do the work given them. The institutions are generally in the need of funds. It would never do to demand too perfect an individual. On the standard of health too many might be debarred.

Granting that physical training is an important adjunct to mental work, the question arises, To whom must students of health turn for instruction in this branch? Obviously the men who should be best fitted to direct such work are the men who are devoting their lives to the welfare of mankind,—the medical profession. But while they devote years of study to pathological conditions and their relief, very few hours are devoted to the consideration of the healthy body and how to keep it so.

It is not that its importance is underestimated, but rather because, through tradition, physical training in the minds of most physicians is associated with athletes and athletic sports.

Physical training has not yet acquired the dignity of being incorporated in the curriculum of medical study, but is supposed to lie within the province of the gymnasium instructor or the professional athlete. And yet it is to the physician that the man worn out with business cares, the student nervously exhausted, the parent anxious that his children should grow up strong and healthy, all come and demand relief and advice, for he is supposed to as thoroughly understand the laws of health as he does the symptoms and treatment of disease. And he should. Why, then, is not more attention paid to the subject of physical training in our medical schools? Is it not because a physician's reputation is made not from his attempts to keep his patients in good health, but from his success in treating them after they are ill?

Unless a physician has of his own accord looked into the subject and carefully considered it, he is apt to do as much harm as good when he recommends exercise to a patient. For exercise, to the average practitioner, simply means something, anything, which calls for muscular exercise. It is not necessary that a graduate in medicine should be a skilled gymnast or a competent instructor in gymnastics, but he most certainly should have some

idea of the amount of exercise which an individual needs, the best means of his obtaining it, and the proper manner of beginning it.

I take the liberty, therefore, of presenting to you, this evening, a few ideas upon the subject of physical training.

The healthy, vigorous boys or girls need no special instruction in this branch. Their natural instinct is to romp, to enjoy life, and to join in the various sports and pastimes. They simply need a word of caution against too severe or too prolonged exertion, and a few directions how to guard against getting chilled or overheated.

But it is different with the children of delicate physique. Their natural instinct is to stay within doors. The pleasantest day seldom tempts them into the open air; and even when they do go, the inherent sense of their own weakness keeps them from joining in the sports of their playmates. Their parents generally help them in this tendency. Because they are known to be delicate, they are kept from the very things which might enable them to grow strong. The majority of them could be greatly helped by being made to join in certain games and forced to follow a systematic course of training. Through the lack of systematic and regular exercise, many a child has been prevented from growing strong and healthy.

As most of what I have to say can be applied to both sexes, I shall, for the sake of simplicity, confine my remarks to the male sex.

The line between health and disease is never widely separated, but the change from one to the other is in the inverse ratio, for it is much easier to lose one's health than it is to regain it. There is no system of training that can prevent a child from becoming ill, but a systematic life will strengthen a child's power of resistance. You cannot by exercise remove from a child his inherited weakness; but you can build him up and give him greater power, so as to establish a balance of health in his favor. According to the age and natural strength of the child, you should map out the line of his early life. If he is strong, see that he does not develop one portion of his body at the expense of another. If his chest is weak, encourage him in those games which call for lung power and good chest muscles. Have him taught to stand and sit properly and to use his lungs voluntarily, by breathing slowly and deeply.

You cannot apply one system to all, for each individual body has its own peculiar characteristics.

When the boy becomes a youth, he becomes more of a creature of impulse. If he enjoys exercise, he takes it. If he is fonder of his studies, he abandons it. The one needs restraint, the other encouragement. An excess in either direction leads to permanent injury : either to too great muscular development or to a loss of physical condition.

Accordingly, when the youth takes up his life's work, he brings into it either the energy of good health or the millstone of an impaired constitution.

Proper food, good air, sufficient rest and exercise, are the demands for physical training.

The laws of physiology tell a man when he must eat, and what the character of his food must be. It is not within the means of every man to always get what is best for him, but it is within his power to learn how to breathe properly and to take a sufficient amount of exercise.

The natural tendency of most men is to breathe superficially ; for as breathing is largely an involuntary action, it is only when the will-power is invoked that men slowly and thoroughly inflate their lungs. By muscular exertion the same object can be attained. Accordingly it becomes necessary that, during exercise, a proper attention should be paid to the manner of breathing. When you advise a man to exercise, call his attention to the value of his holding himself erect, with chin, chest, and toes in nearly the same line as possible ; with shoulders well settled, not falling forward, and with the mouth closed. Tell him to breathe as slowly and deeply as possible, but to avoid straining his lungs by too full or too forcible inspiration.

In regard to the amount of exercise which he should take, that must depend upon his strength. The question of how his exercise is to be taken, largely depends upon his occupation, and the amount of time which he can devote to it.

Certain points must be remembered. He should begin gently, increase gradually, exercise with regularity, and always avoid too excessive or too prolonged exertion.

The men who most need exercise are those whose occupations keep them within doors, and who labor especially with their brains. This is the class which finds difficulty in getting what they need, for their time is limited and their work never finished. They can

however, always take a sufficient amount, if they feel so disposed. For instance, if a man lives in a town, he can take a fifteen and twenty minutes' walk to and from his business. Upon rising in the morning he can devote the same length of time to exercising in his room, either with chest-weights or dumb-bells, or by going through exercises and motions without any apparatus. These exercises he can repeat at night, either just before dinner or before retiring. It is surprising how much benefit can be obtained from two short walks in the open air and a half-hour's exercise during each day.

If he goes to a gymnasium, he should thoroughly understand how to begin his exercise. The latter part of the afternoon is the best time. He should wear the proper amount of clothing, and do his work quickly and systematically. The work at first should be light, and never carried to the point of fatigue. He can begin with the chest-weights. With a light weight in each hand he should go through the various movements, ten times for the first day is sufficient. Then a few moments with the wooden dumb-bells, a dip or two between the slanting parallel bars, a short exercise of throwing the so called medicine ball (a large leather ball stuffed with hair or tow), ending up with a slow run around the track, for a distance equal to a quarter of a mile. This will be found to be enough and not too much for most beginners, and there will be no resulting stiffness or soreness next day.

After this exercise he should take a moderately cool bath, a brisk rub, and then dress slowly. On each succeeding day he should increase by one the number of times which he performs each movement, and perhaps add a lap to the length of his run.

By the end of three weeks he is doing each movement twenty-five or thirty times, he moves more quickly, and already the effect is seen and appreciated. He is now in a condition to bring more variety into his work, and can either join one of the regular classes or with a friend indulge in a game of hand-ball, court-tennis or rackets. He has not made the mistake of beginning his exercise too violently, and there is no reason why he should ever have felt the slightest lameness.

A man who has once got himself into fairly good physical condition, is ready, whenever the opportunity offers, to indulge in any of the out-door sports. He can row, play tennis or golf, or enjoy a bicycle ride. There is one chief objection to the bicycle. As yet I have not seen what I consider a proper saddle. Nature intends when we are in a sitting position that the tuberosities of

the ischii should receive the weight. The modern bicycle saddle allows the greater part of the weight to fall upon the perineum. This is especially disadvantageous for lady riders. The ease with which a bicycle can be driven tempts one to ride too fast and too recklessly. Steep hills should be avoided as they call for too great a strain upon the heart.

Whatever the form in which exercise is taken, over-exertion should always be avoided. But over-exertion should not be confounded with the natural fatigue which one feels after a long walk, row, or ride. That is but the natural result of a well-regulated and healthy exercise, and it demands but one treatment,—namely, rest.

Rest is one of the important parts of physical training. The hard-working man, who can or will take his hour's rest at noon, does better and more satisfactory work during the remainder of the day. The man who gets his seven or eight hours of sleep during the night, wakes up ready and eager for his day's work to begin.

But in the face of all these facts and suggestions, one is constantly confronted by the statement that there is Mr. "So and So," who is perfectly healthy, and yet he has never taken any exercise in his life. All that can be said in reply is that a man who has been blessed with a good constitution can apparently abuse it with impunity. The effect of his life, however, can generally be seen in the constitution of his children.

Looking at physical training from a selfish stand-point, it does not always appear to be a necessity to an individual blessed by nature with a good constitution; but looking at it from the stand-point for the welfare of mankind, it becomes not only a necessity, but also an obligation.


I have purposely omitted the consideration of the practical application of physical training to the students in our schools and colleges, for I consider it of too great importance to be hurriedly passed over in a general paper of this kind.

In conclusion, allow me to add that while I know that physical training cannot do everything for the human body, I do believe that it will greatly assist in youth the acquirement of health, and later in life will so aid the preservation of strength as to give greater power for the postponement of the inevitable end, which according to the laws of nature must sooner or later come to us all.

Infectious Diseases.¹

BY ALBERT ANDERSON, M.D.,

Wilson, N. C.

ALLOW me to thank your Executive Committee for the honor conferred in their invitation to address this honorable body of scientific workers as well as workers of art on the subject of "Infectious Diseases." In reading the minutes of your State and national meetings, I was agreeably surprised to find how well posted are the members of your association on infectious diseases, their cause and prevention. To tell you anything new on this subject will perhaps be impossible, and what I shall say may be only a reiteration of facts to which you have often listened and heard from a more eloquent tongue than mine. But important facts of bacteriology should often be told till they tinge the warp and woof of your thoughts and actions. And from this view of the subject I might appropriately quote the language of St. Paul, "Therefore we ought to give the more earnest heed to things which we have heard lest at any time we let them slip." And he puts it stronger in saying, "Finally, my brethren, rejoice in the truth. To write the same things to me is not grievous, but for you it is safe."

I believe the time will soon come when all contagious and infectious diseases will be traced to specific bacteria as etiological factors, and we must look to the bacteriologist with his microscope and culture methods to discover the pathogenic microbes of those diseases, the causes of which have not yet been discovered, verified, and classified. For any germ to be considered as a cause of disease must fulfil three conditions :

(1) There must be a constant presence of a special form and characteristics of bacteria in a certain disease, and only during the disease with some slight modifications to the latter clause.

(2) It must be capable of isolation in pure culture.

(3) It must produce the disease when properly introduced into an animal susceptible to that particular disease. The forms of bacteria are put into three great divisions,—cocci, bacilli, and spirilla. The cocci or micrococci are spherical, and are subdivided

¹ An address delivered before the North Carolina State Funeral Directors' Association.

according to their grouping. Streptococci arranged like a row of beads. Staphylococci like a bunch of grapes. Diplococci found in twos, tetrads in fours, and sorcinæ in bales.

Bacilli are oval or rod-like in form. Of this division we have bacilli single, in pairs, in threads, and some of variable forms.

The spirilla are those that are either curved or in the form of a corkscrew. We can examine bacteria for the purpose of differentiating one kind from another by direct microscopical examination, by the appearance of the colonies on surface culture or in culture media, by chemical reaction and by inoculation. The above conditions, carried out in detail, as did the immortal Koch in his classical work of 1882, will verify a specific pathogenic microbe as accurately as any scientific crucial test will demonstrate. In accordance with these conditions, tuberculosis, croupous pneumonia, diphtheria, cerebro spinal meningitis, erysipelas, anthrax, glanders, tetanus, actinomycosis, acute ulcerative endocarditis, gonorrhœa, Asiatic cholera, influenza, and various pyæmic and septicæmic diseases have been proven. It is of prime importance to the physician to know what he has to treat before beginning treatment. "Within the last dozen years we have seen a mighty empire held in breathless suspense while a tiny particle of tissue from a prince's vocal cord was undergoing a microscopical examination by the foremost pathologist of the world. The physician, with pencil and blank before him, does not prescribe until the microscope makes or confirms the diagnosis. The dermatologist will tell you directly whether the eruption is parasitic or a neurosis. And even the threatened disruption of family ties has been prevented by the demonstrated absence of the Neisser's coccus and a judgment for having set up a urethritis of vegetable origin been docketed against asparagus. The hygienist goes ever and anon to the bacteriological laboratory to get his bearings. And when he thus becomes the means of shielding a continent against the invasion of a deadly pestilence, he wins and justly merits not only the plaudits of a nation but the gratitude of all mankind." —HAYS.

Our work, that of the physician and undertaker, is supplemented, tongued, and grooved. In parasitic or pathogenic diseases we have to battle with the invisible enemies of the human race. The physician gives his best attention and thought to limit the destructive action of these enemies. He fights them with anti-septic remedies fortified by the bulwark forces of nature. The

ideal method is to kill these enemies without harming the tissues where they live. We have not found this method, but we are on the right line. Our subsequent laborer has the advantage; he can germicide without fear of homicide. Mysterious life wrapped up in the tissues must be handled with great care. After their deadly work, the undertaker can destroy them in and about the person, and thus protect the living. You know as well perhaps what the germicides are as well as the physician and in what strength to use them. What perhaps would be interesting to you is to know something of the life characteristics of bacteria and their results upon the body.

If we believe that contagious diseases are due to pathogenic bacteria, we ought to have reasons for the faith within us, and having these reasons we shall have sufficient basic knowledge to handle them preventively and harmlessly to ourselves and others. "Omne vivum ex vivo" applies to bacteria as well as to any living organic matter. All life must come from pre-existing life. Every bacterium must come from some pre-existing one. It is a vegetable organism differing from other vegetable organisms, in that it has no chlorophyll. It is unicellular. As to their manner of living they are named saprophytic or parasitic as they live upon dead or living organic matter respectively, and if we find some that can live upon either, they are called facultative. So with oxygen. Some live only in presence of oxygen, some do not, and others can do either, from which fact they are facultative. Do not hold in your mind the idea that all bacteria are our enemies. The saprophytic variety are among our maximum benefactors and that of all the animal kingdom. They obtain their living upon dead organic matter. We know that vegetation demands ammonia and carbon dioxide to live upon, and to a certain extent it gets these from animals, but only a drop in the bucket from this source compared to the amount furnished by the saprophytes in their work upon their material pabulum, dead organic matter. It is stated upon high authority that were it not for these micro-organisms all life upon the surface of the earth would undoubtedly cease; not so with the parasites, they are our worst foes. Their natural habitat is in living organic matter, and those that produce disease are known as pathogenic.

When bacteriologists first commenced their efforts to prove the pathogeny of bacteria, one of the first steps was to plant, isolate, and grow them on a culture medium as a gardener or farmer

would plant and grow and improve his seed. Bouillon or beef-tea, slightly alkaline in its reaction, and its modifications was the soil then and mostly now employed. One bacillus will produce a colony of its kind, and in twenty-four hours one will multiply into millions of millions. These colonies have characteristic appearances, according to the kind of bacteria and its culture media as the cabbage seed produces its life characteristics in germination and growth.

With the hand lens or lower power used in microscopical work the peculiar life characteristics of a colony of bacteria are as evident as those of any vegetable plant to the naked eye, and therefore, from these appearances in outline and contour and reaction in culture media, the expert bacteriologist can predict almost to a certainty what he has from this culture.

There is a property of the bacilli I would call your attention to, and that is the power of forming within their bodies spores. Where you know that bacilli contain spores, remember that the spores will resist destructive influences longer than the bacilli. From a bacillus there comes two, but from a spore there comes none. No spore ever produces another spore, but may produce under favorable circumstances a bacillus, and upon this fact is based fractional sterilization or intermittent sterilization for three successive days. How do pathogenic bacteria kill? By septicæmia, which is "that form of infection in which the blood is the chief field of activity of the organisms." By toxæmia, which is toxin, a soluble substance, produced at the site of inoculation and gets into the circulation by absorption and causes death through this channel. Diphtheria is a type of disease that produces death by toxæmia. A remedy that would counteract this toxin in the system would be an ideal remedy that would cut off a good deal of work of the undertaker as well as the doctor. We believe our profession has this in antitoxin, and if not, the bacteriologist, working upon the same line that produced this, will finally be rewarded with a perfect remedy. The antitoxins already produced and that are now in use are based upon the bactericidal properties of the blood, and I am happy to tell you that our own countryman, Dr. George F. Nuttall, of Johns Hopkins University, was the first to make this discovery. His co-laborers, faithfully as well as scientifically, working upon the basis of this discovery may be named the Frenchman, Roux, and the German, Behring, as occupying the next places of honor in

the galaxy of original investigators. Preventive medicine has been the key-note which every bacteriologist has faithfully labored to find and present to the world ever since its true study commenced, some 220 years ago, by Antony von Leeuwenhoek. Down the two centuries it has travelled slowly till fifteen years ago it made its bound and came most of the distance. In this time longevity has been increased from twenty-eight to forty-one, and this fact is based upon not only hygiene, but the intelligent practice in managing infectious diseases and the aseptic and antiseptic methods used in surgery. The great surgeon, Senn, said that "during the last fifteen years there has been more real advance made in surgical pathology than during the twenty centuries preceding them. Bacteriology opened a new era for surgical pathology. The knowledge which accumulated from the bacteriological investigation of diseases has opened new fields of usefulness for the surgeon. Many diseases hitherto treated uselessly with drugs by the physician are now successfully treated by surgical measures. At this time surgical pathology has almost become synonymous with surgical bacteriology." The fearful outbreaks of epidemic diseases in ancient and mediæval times were not understood as due to filth upon which germs of disease flourish. People in those times attributed these epidemics to the wrath of a just God, and in modern times all over heathendom the same cause is supposed to prevail. To attempt to stay the progress of the great cholera epidemic by hygienic measures in one of the provinces of Turkestan caused a visit only two or three years ago, for it was considered by these heathens as sacrilege to interfere with the progress of disease inflicted by the great Jehovah. Ancient mythology was the creed of the ancients in their polytheistic faith. Every calamity was attributed to the vengeance of an offended god. On the other hand, every favor was granted or given by some particular god. Whoever said that cleanliness is next to Godliness spoke a proverb, and more than a century after this sage's utterance the bacteriologist showed the tangible evidence of this truth through his microscope, and Koch and his collaborators made the evidence complete, of the causal relation of microbes to disease. The tiny microbe that deals death to the millions annually evades the chemists with all his crucial tests for impurities in water, milk, and food stuffs. It takes the careful and pains-taking examination of the microscopist and his culture methods to reveal the deadly infinitesimal vegetable organisms.

Tubercle bacilli produces consumption, and it is said to be “responsible for one-seventh of the deaths from all causes in the world, carrying more people from time to eternity than do all other infectious diseases combined.” Hear the conclusions of one of America’s most distinguished sanitarians :

(1) Tuberculosis is a communicable disease and is distinctly preventable.

(2) It is acquired by direct transmission of the tubercle-bacilli from the sick to the well ; usually by means of the dried and pulverized sputum floating as dust in the air.

(3) It can be largely prevented by simple and easily-applied means of cleanliness and disinfection.

Vaccination commenced in 1796 by the immortal Jenner, has in time reduced the mortality from small-pox almost to *nil*. Why do we have recurrent outbreaks of this disease? Because our people will not protect themselves by vaccination. We have no compulsory vaccination laws in North Carolina. The lamented and beloved Dr. Thomas F. Wood said in the last conjoint session of the State Board of Health with our State Medical Society, before his death, that we were raising the ripest crop for small-pox in North Carolina, and expressed his fears that at no very distant day our people would be decimated as of old by this dread disease.

The object of this association in creating an intelligent interest in infectious diseases, their cause and prevention, is a worthy one that should be heartily endorsed by all your members and meet with the hearty co-operation, as it does, from my own profession. You should therefore have the same protection in your noble work from State laws as our own profession, so it seems to me. If you have incompetent men to handle the dead of contagious diseases, fearful will be the risk to the living. You know of more instances than I can tell of this important fact. Let us all work together to reach “the ideal city of Hygeia, with her broad streets, lovely courts, and faultless drains, her extended parks, silvery lakes, and pure water, with a population moral, cultivated, and intelligent,” that will not tolerate a single individual to do our work that is not worthy, morally and intelligently competent. Hear the conclusion of the whole matter in the graphic analysis of the bacillus and his work by one who knows what he is talking about :

The bacillus is paradox itself ; it is at one and the same time

the weakest, minutest, and yet the mightiest of created beings. Individually he is the sixteen-millionth part of weakness and nothingness; collectively he is the consummation of destructive power. All life succumbs to him. The bacillus was born nobody knows how or when, but it is evident that he did not "die a-bornin'," nor could he help his birth; but that he was born before man his vegetable origin testifies. He was born educated and needs no training. He labors every part of every second in the day and knows not how to neglect a duty. He is neither Republican, Democrat, nor Populist, but a simon-pure Nihilist. All things have an end except the bacillus, and he has two ends, and each end makes two more ends; each end and every other part of him is productive. A single bacillus in a single day will have 16,000,000 descendants, and each descendant proceeds with due order and regularity to beget 16,000,000 more, so that 16,000,000 multiplied by 16,000,000 every hour in the day will barely give a commensurate idea of his productive powers. The bacillus in breeding is a good deal like the negro's conception of a mule kicking,—that is, "mule don't kick accordin' to no rule;" the bacillus multiplies according to no rule, but that he is the greatest multiplier in the world no man can doubt. Arithmetic don't contain enough numbers to out-count him. His relationship is extensive; he is at the same time father and mother, sister, brother, uncle, aunt, cousins, grandfather. It has never been determined whether he is his own mother-in-law or not. He is noble by birth and surroundings, and only lives on highly organized bodies. He feeds upon emperors, czars, kings, princes, even politicians, and all living kind. His residence is the grandest product of God, crude substances will not catch him.

He requires fresh air at one time, at another not, but always moisture; he stands temperature well, thrives between 86° and 104° F., but when it comes to cold he can give the famous brass monkey a thousand points and discount him. You may freeze him 200° below zero and he will only hibernate; he is like the grain of corn wrapped up with the body of a mummy for several hundred years, dormant and unproductive,—he only needs heat, light, and moisture to fill him with active vigor. You can find him only where there is plenty of company; he abhors a desert, detests the open sea, altitude gives him a weak heart, hence he is never found on high mountains. He is found in earth, air, and water, and like a good Christian cannot thrive in hades. He is

distributed universally, individually, and collectively; killed by the sight of a flea, he himself kills the strongest product of God. He is more destructive to human life than wars, famines, floods, earthquakes, railway trains, and threshing machines multiplied many times over. He is greater than the strongest, because he has affected and controlled all generations of animal life; his activity is boundless, his value is known only to God, his capacity for evil has never been computed. One of his species alone (the tubercle bacillus) kills 142,857 persons out of every million dying from all causes, not to mention the hundreds of thousands of deaths produced by his near relatives. For man a word is sufficient, but the bacillus wants the earth; not only man, but all animal life is demanded; man's creation was the bacillus' opportunity, and he embraced it. He is a rod and becomes very near being the chastening rod of God.

He is the idol of death, and the boon companion of misery.

He is the mighty, dire, remorseless, unceasing and hideous Nemesis of man's ignorance.—*Railway Surgeon.*

A Point in the Training of Youth.¹

BY CHARLES S. MACK, M.D.,

Ann Arbor, Mich.,

Professor of Materia Medica and Therapeutics in the Homœopathic Medical College in the University of Michigan.



WE hear a great deal of the breaking of health attributed to the hurried, anxious, nerve-trying life common among business men and among women who are overtaxed by responsibilities connected with social or philanthropic duties. I remember seeing a few years ago an obituary notice in which a woman's death was attributed to over-exertion in the establishing of kindergartens. That she was a very estimable lady, and that her career was most useful I have no doubt, but that she died of establishing kindergartens I have no suspicion. We all know perfectly well that few, if any, of these breakdowns are due to honest work, pure

¹ From the Hahnemannian Monthly. Read before the Homœopathic Medical Society of the State of Michigan, May, 1895.

and simple. They are very largely due, I think, to habits of thought and feeling which a judicious training in youth might have done much to avert, and I want to say a few words in regard to this judicious training.

I do not know that any one lives who could confidently speak in much detail of thought and feeling as unfavorably affecting health, but there is an idea, and I think it correct, that greed, envy, jealousy, disappointed ambition, and other feelings with their false notions, bear causative relation to disease of the body. With no attempt at detail in the subject before us, I would advocate as a hygienic measure that we do all we can to centre the real interest of young people in something else than self. What I urge is not fanaticism. I recognize perfectly well that every one has, and of necessity must have, an interest in self. Self is a necessary condition to our relations with anything outside of self, and care of self is, therefore, necessary to the accomplishment of any worthy end. What I here deprecate is the training of youth to a life self centred in such a way and to such a degree that their contentment in life will depend upon pre-eminence in the eyes of their fellows. Much training of young people to-day need hardly be varied if our object were to make such pre-eminence the aim of their existence; the process is begun with the child by injudicious parents and friends who dwell upon his beauty or his smartness or his goodness or other characteristics which one would far better quietly and gratefully accept as a blessing than laud as a mark of superiority. Later, the boy or youth is too often permitted to think, or even trained to think, that pre-eminence because of riches, fame, or power, is *the* essential to success in life. All this is bad, and leads to that diathesis which may fall a victim to whatever disease-inducing power there is in envy, greed, jealousy, or disappointed ambition.

Of course, the counter-influence to anything which I here cite as bad in the training of youth is whatever tends to the substitution of usefulness instead of pre-eminence as the aim in life.

Funerals and Bicycles.

The livery-stable-keeper who says he will have to fall back on funerals for a living, owing to the popularity of bicycles, will find small comfort, as the bicycle is reducing the death-rate.

Inauguration of New Sanitary Works at Paris.¹

THE Congress organized by the Society of Sanitary Architects and Engineers of France was preceded by the inauguration of the aqueduct and the irrigation fields of Achères. At ten o'clock in the morning on July 7 the members of the Congress had assembled on the new iron bridge which crosses the Seine from Colombes, on the peninsula of Gennevilliers, where the first sewage farm was established, to Argenteuil. Under the carriage-way of the bridge are four large iron pipes, which receive the sewage raised by the pumps of Colombes. Here there are engines of 1200 horse-power that raise two cubic metres of sewage per second from the altitude of twenty-four metres to a point at Argenteuil at an altitude of sixty metres. From this elevation the sewage will be able to reach by gravitation the most distant irrigation fields. On the bridge a handsome verandah had been erected, with a platform underneath. The chair was occupied by M. Poubelle, prefect of the Seine; and by his side were M. Baudin, vice-president of the Paris Municipal Council, and representatives from the Ministers of the Interior, Public Works, and Agriculture. M. Poubelle delivered a very eloquent speech, giving a retrospect of the sanitary works accomplished. He explained that the Paris main sewers threw into the Seine 391,000 cubic metres of sewage per day, or 143,000,000 cubic metres per annum, containing per annum about 10,000,000 kilogrammes of nitrogenous substances, which might be estimated at about 20,000,000 francs. Thus £800,000 worth of fertilizing agents are lost annually. Three generations of engineers had sought to prevent this waste—Belgrand, Alphaud, Mille, Couché, and Durand-Claye, the latter being "the sincere and persuasive advocate of the principle now accepted: 'all to the sewer and nothing to the river.'" In 1900 the peoples of the world who would come to Paris to pacifically celebrate the advent of a new century will be able to admire and marvel at the perfect health the French capital would then enjoy. They will study the harmonious working of its organization and will see in its innumerable canalizations the realization for towns of the principles of the circulation of the blood in the human

¹ From a special correspondent of the London Lancet.

body. Like arteries reaching the utmost extremities, so will pure spring water be brought by pipes to every house and every tenement. Then from every dwelling, drain-pipes and sewers, like veins, will bring the sewage to be revived in the pores of the earth, and by the action of the plants which will derive their nutriment from the impurities of these waters. The contemplators of this system will understand the lofty character of the lesson in natural philosophy that results from these phenomena. They will celebrate under a multiplicity of forms and appearances the grand unity of science, and they will carry away with them the conviction that the study of life and its laws can prove as beneficent for a town as for an individual, and that man is all the nearer to truth as he succeeds more and more in borrowing from nature its processes and in faithfully conforming to its laws."

M. Baudin spoke of the desire of the Paris Municipality not to compromise the interests of the neighboring districts, but, on the contrary, to enrich their agricultural resources. They would find that the advent of sewage in the arid plains that would now be put under cultivation would not only save the Seine from pollution, but would enrich the suburban districts. After some more speeches the members of the Congress, whose presence greatly increased the imposing appearance of this function, went to Argenteuil, where a midway banquet had been prepared. This repast was, of course, followed by the toasts suitable to the occasion. Then the members of the Congress went by train to Herblay and crossed over the Seine to the 800 hectares of the plain of Achères which are to be fructified by the Paris sewage. They were able to see the first trenches made for the reception of this sewage, and to inaugurate its advent on the farm.

On the following Monday morning the work of the Congress commenced at the Palace of the Liberal Arts, in the Champ de Mars. On behalf of the Minister of the Interior, the sitting was presided over by M. Monod, chief of the Sanitary Services of France, who in his opening speech paid a handsome tribute to the fifteen representatives of the British Association of Sanitary Inspectors present at the Congress. On the previous evening these gentlemen, together with the other members of the Congress, had been entertained at the Ministry of the Interior by M. Leygues, the Minister. The band of the Republican Guard discoursed sweet music in the illuminated gardens of the Ministry, alternated by singing and recitations in-doors, given by some of the most

celebrated performers from the Théâtre Français and other Paris theatres.

The Congress has been organized in a very practical manner. Its official sittings are held from nine to half-past eleven each morning, and two subjects only are set down for discussion. A reporter for each subject has been appointed, and his report, generally terminating in a series of resolutions, has been printed and circulated among the members. Thus all the members know what will be discussed and on what they will have to vote. In the afternoon the subjects of discussion are left to the initiative of private members, and then follow visits to sanitary services. Thus on Monday the Congress visited the disinfecting establishment of the Rue de Récollets. This is one of the most perfectly installed disinfecting stations in all Europe. It was fully described in the *Lancet* during the course of the recent cholera epidemic. On Tuesday afternoon the Congress visited the pneumatic drainage works of the Société de Salubrité at Levallois-Perret. On Wednesday the Congress will inspect the sewers, and on Thursday the public slaughter-house.

Bacteria and Graveyard Soil.¹



R. E. H. WILSON, bacteriologist of the Health Department of Brooklyn, recently submitted a report of his investigations of fragments of coffins sent him from some of the cemeteries in the vicinity of the wells which contribute to the Brooklyn water-supply.

He reports in substance that while these fragments contain, as might be expected, a large variety of bacteria, no pathogenic varieties have been found; that the popular idea that all bacteria are dangerous is a totally erroneous one. The bacteria which are engaged in the process of destructive decomposition of the body are doing a beneficent work in returning to the soil the elements of which the body is composed, in a condition to be readily assimilated by the higher plants. Investigation has shown that the soil of graveyards contains no more bacteria in proportion than the soil of other places, especially below a certain depth. "In conclusion, I would say that while the presence of coffin

¹ From the Sanitarian.

fragments several years old is not to be commended from a bacteriological point of view, they are comparatively harmless, and only remind us more forcibly of the fact that it is the living and not the dead from whom we may expect harm in this matter."

On this statement, Dr. Wilson appears to suggest for the comfort of the people of Brooklyn that no danger lurks in such wells as those referred to. While it would be clearly inconsistent with the habitudes of pathogenic bacteria to find them in substances so uncongenial to their nature as fragments of rotten wood, it is evident that his investigations have not comprehended the best literature on the subject,¹ or he would have learned that corpses in process of putrefaction often eliminate dangerous gases liable to being taken up by both air and water; that morbidic germs in the bodies of persons who die of infectious diseases keep alive for an uncertain period; that, like the gases eliminated by the putrefaction of animal bodies, such germs are liable to be conveyed by the air or by the soil water, and that they are ever ready for deposit and reproduction whenever and wherever they find suitable living beings to breed in; and that the relation of cause and effect of such conditions, as cited by many competent observers, is not to be disregarded because biologists have not succeeded in finding such germs in "coffin fragments" or other things uncongenial to them; or because chemists have not always been able to discover them in water that has been deadly in its effects.

True it is that different and innumerable numbers of bacteria are to be found in a decomposing corpse, some engaged in the beneficent work of destruction, but others of a different kind, and among them disease-germs, concerned only with the maintenance and reproduction of their species; and the natural history of these is sufficiently well known to establish their twofold relation to the dead body in the grave and the living body in the bed.

The deadliness of the gases that escape from the graves of bodies dead from infectious diseases is doubtless due to the germs that float in them mixed with the air breathed; or, as just above stated, taken up by the water drunk.

Dr. Copland, in his evidence before the Committee of the

¹ *E.g.*, Treatise on Hygiene, Stevenson and Murphy and others.

House of Commons, related that one of his patients went to a chapel where the burial vaults were underneath the steps. On going up the steps he felt a rush of foul air issuing from the gratings on each side of the steps: the effect was instantaneous. It produced a feeling of sinking, with nausea and great debility. He went home and to bed. Eight days afterwards he died of malignant fever. In the early part of his illness his wife had slept in the same bed. She caught the disease and died in eight days also, having experienced the same symptoms.

Water pollution by animal impurities is common knowledge. And while it is accepted on the authority of Pasteur that no germs can exist in *spring* water at its source, it should be borne in mind that the wells which contribute to Brooklyn's water-supply are not spring water, but superficial wells sunk in a sandy soil that rests upon an impervious hard-pan stratum.

Ordinary animal impurities in water-supplies declare themselves to the senses, and instances of the propagation of infectious diseases thereby are well known. Where animal matter finds its way through the soil, surely there can be no obstacle to the migration of microbes. And that an exception to the contrary should be taken with regard to the drainage of cemeteries into water-supplies is among the marvels of eccentric officials in sanitary service.

Sir T. Spencer Wells relates the following case in point:

Some people living in a mountainous country, and having very little communication with each other, were in the habit of quenching their thirst at a neighboring well after the Sunday's attendance at the church of the district. A young man died of diphtheria, and was buried in the yard. The drinking from the well continued, and in a short time twenty of those peasants were carried off by the same disease. If asked how we are to account for this accident, but on the presumption that the germs of the disease found their way into the water of the well, various explanations, such as milk outbreak or personal communication, may be imagined, but none which so exactly correspond with the circumstances as seepage from the corpse.

The recent epidemic of typhoid fever from manure seepage at Stamford, Conn., is a parallel instance. Blackham's well, from which he confessedly watered his milk (cans), was but six feet from his horse stable. Isolated instances like these, where but a few hundred persons are poisoned and only a score or

so killed, commonly rouse the neighborhood to a high pitch of indignation, and to the possible indictment of the irresponsible perpetrators.

Yet the singular appositeness of the existing relation of the cemeteries to many of the wells that contribute to Brooklyn's water-supply, and her perennial prevalence of diphtheria with over a thousand deaths from it annually, and a considerable mortality from typhoid fever besides, that are not otherwise accounted for, is barely winked at by the health authorities, with an effort to make the people believe that it is without danger.

Rules for the Disinfection of Dwellings.¹



N all cases where orders are given to disinfect dwellings, the following rules are to be observed :

(1) On arriving at the dwelling to be disinfected, disinfectors must change their uniforms for working clothes ; the uniform must be packed according to order in a closed bag brought with them, and must be kept in a proper place.

The wearing of uniforms during disinfection is forbidden. Disinfectors are to supply themselves with working clothes and a bag in which to keep them, and also a bag for their uniforms as approved by the Commissioner of Health.

(2) After having changed their clothing, disinfectors are to make a thorough inspection of the sanitary condition of the premises ; inspect the water-closets, bath-room, cellar, privy-vault, and all parts of the premises ; order the removal of all decayed or decaying vegetables from the cellar, and give the cellar all the ventilation and sunlight possible ; order the removal of all garbage or offensive material found about the premises, and any dark, damp pits or ash-heaps where refuse matter has been thrown should be thoroughly cleaned and disinfected by sprinkling the locality with Standard Solution No. 1.

(3) Disinfect privy-vaults as follows : Dilute one part of Standard Solution No. 3 with three parts of water, and wash down with this solution all exposed parts of the vault and the wood-work above it.

¹ Directions issued by the Board of Health of Milwaukee for the guidance of the disinfection corps.

(4) Disinfect water-closets by pouring in a quantity of Standard Solution No. 1, after which, if the chloride of lime is objectionable, wash the closet thoroughly with a hot solution of the sulphate of iron in proportion of a tablespoonful of sulphate of iron to a quart of hot water.

(5) Disinfection of clothing: First procure all the necessary utensils to do the work. All infected articles of clothing before being handled or removed should be sprinkled with Solution No. 4. All small inexpensive articles should be destroyed at once by burning. Other articles of clothing, bedding, rugs, and all textural fabrics, mattresses, and ticks should be disinfected in the disinfecting van, except such clothing as can be washed, which should be placed in and covered by either Solution No. 1 or Solution No. 4, where it should remain for twenty-four hours, then be submitted to boiling water and boiled.

Articles submitted to treatment in the van should be kept in the van for a period of from 20 to 40 minutes at a temperature of 240° F.

Thorough sponging of carpets and such other articles as cannot be treated by the above means with Solution No. 4, and then ironed while moist with an iron kept as hot as the goods will bear without scorching, will disinfect in a very satisfactory manner.

(6) Disinfection of furniture: Remove all furniture from the walls, taking down pictures, etc., and place in the middle of the room, and disinfect there, one after another; all the bedsteads, chairs, vessels, dishes, and all upholstered and movable articles must be wiped over twice with sponges wrung out of Solution No. 4, and then wiped dry at once if possible. These articles should stand in the open air for as long a time as possible.

(7) Disinfection of a room: Rooms which have been infected by the presence of patients or others caring for patients suffering from contagious disease should first be measured and the number of cubic feet of air space therein ascertained.

First, it is better to remove, if possible, all paper from the walls and ceilings if present; if not possible, the walls and ceilings should be carefully and thoroughly rubbed down with bread (new rye bread being best), and all crumbs dropping on the floor should be promptly swept together by a moist broom and burned.

All wood-work about the room should be washed with Solution No. 4, and if very dirty should be preceded with a thorough scrubbing with soap and water.

Pictures which are not covered with glass should be wiped with soft dry rags, oil paintings wiped with a cloth wet with Solution No. 4, and dried at once.

All articles which cannot be disinfected in the van, such as boots and shoes, India-rubber wares, etc., and metal goods, such as lamps, frames, door fittings, glass, porcelain, and knick-knacks, should be washed or wiped with soft cloths or sponges wrung out in Solution No. 4 and dried.

Walls that are stripped of paper should be washed with Solution No. 4 or with quick-lime solution, and the fragments of paper removed should be immediately burned.

In cases where it is thought best to disinfect by sulphur the room should be thoroughly and completely closed, windows and doors made as tight as possible. After the wood-work in the room has been treated as above described, and all articles to be disinfected removed to the centre of the room, clothing is to be suspended on lines drawn across the room and spread out as much as possible, and at least three pounds of sulphur to the thousand cubic feet of air-space must be completely burned; steam should be generated in the room during the process of burning sufficient to create a moisture in the atmosphere; this can perhaps best be done by placing three or four hot bricks in a tub partly filled with water; the room should then be closed and kept so for at least twelve hours, then it should be opened as much as possible to the light and air.

(8) All utensils used by disinfectors, such as ladders, pails, etc., should be carefully washed with Solution No. 4 at the close of work. The disinfectors must brush their clothing with brushes dipped in Solution No. 4, and the boots, especially the soles, should be washed with a solution of the same strength. The face and hands and the hair to be well cleaned with soap and water, their working suits removed and placed in the bag provided for that purpose and their uniforms put on. The same rule applies to the temporary leaving of dwellings while undergoing disinfection.

(9) All permanent metal fixtures in the rooms to be disinfected by sulphur should be covered by ointment hereinafter described, prior to burning the sulphur, and wiped clean and dry after the room has been opened.

DISINFECTING SOLUTION TO BE USED BY THE DISINFECTING
CORPS.

STANDARD SOLUTION NO. 1.

Chloride of lime, best quality 4 ounces.
Water 1 gallon.

STANDARD SOLUTION NO. 2.

Corrosive sublimate, permanganate of potash, of
each 2 drachms.
Water 1 gallon.

STANDARD SOLUTION NO. 3.

Corrosive sublimate 4 ounces.
Sulphate of iron 1 pound.
Water 1 gallon.

SOLUTION NO. 4.

Carbolic acid 1½ ounces.
Water 1 gallon.
(Shake well.)

SOLUTION NO. 5.

Corrosive sublimate 2 drachms.
Water 1 gallon.

OINTMENT.

Carbolic acid 1 ounce.
Vaseline 15 ounces.
(Mixed.)

**Ventilation as Applied to Schools and Public
Buildings.¹**

BY C. L. GWYN, M.D.,
Galveston, Tex.

SOME time ago, having occasion to review this subject, I stumbled across an article in the *Texas Health Journal*, by one of Austin's talented physicians, a gentleman who has given much of value to the medical profession, and whose suggestions are not to be treated lightly. In his article he recommends that the transom-sash should be so slanted as to deflect the colder air from without to the ceiling, that the children or audience might not contract

¹ From the *Texas Sanitarian*. Read before the Galveston Medical Society.

colds from the exposure of their heads and necks to draughts. This is, I think, an error, or at least an inadvertence upon his part.

From the structure of our modern buildings, either school-houses or public halls, with walls in symmetry with the length and breadth of the room, there is, ordinarily, a considerable air-space above the transoms in which the superheated air, by natural laws, arise, having no means of escape, becomes a dead air. This air is loaded with minute particles of the emanations from the bodies of those who may be confined in the room, from particles of their clothing, epithelium, and germs of all sorts, benign or virulent. Parkes, in his inimitable work on hygiene, gives two examples of air, the one from the outer or external, giving seven specimens of foreign matter under the microscope, while that from a hospital accident ward, which was supposed to be kept scrupulously clean, contained eleven.

Where thirty or forty children are congregated we can hardly expect them to be perfectly clean and neat or in perfect health; in fact, it would be wonderful, especially in our towns, if one or more had not incipient phthisis, or were of a strumous diathesis, or even suffering from some contagious cutaneous eruption. Spores or germs from any of these conditions are apt to be buoyed up and confined in this air-space. Now, deflect your transom light so as to cause the external colder air to strike the ceiling, you set in motion this quiescent, vitiated air, you precipitate the noxious *materi morbi*, the mixture of hot and cold, of pure and impure currents, to descend upon the heads, necks, and bodies of the scholars, who, while all their energies are mental at the expense of the body, are least prepared to meet them.

Schools are often considered the foci for the dissemination of contagions, and, I fear, too often justly so, from lack of judicious ventilation.

But it is much easier to find fault and to criticise than to find a remedy.

Fortunately, in this climate, where we have balmy, spring-like, and summer weather at least three-fourths of the year,—in fact, we have summer all the year round, except when a “norther,” or the damp, chilly, east wind is blowing,—there is less need of making ventilation a study than in less favored localities. The large and open windows and doors of our public buildings afford the desired removal of the vitiated and deoxygenated air, and the renewal of the purer; but when cold, damp, and chilly winds

cause us to close the natural ventilators, we must look for extraneous help. As the natural method of escape of the heated, vitiated air is upward, reason would suggest that the escape be made easy by vents in or near the ceiling, aid by such mechanical devices as would facilitate their exhaustion. Openings in the cornices or central in the ceiling could be so artistically made as not to disfigure the apartment. These connected to exhaust-pipes run by the same machinery necessary to supply the building with heat, would add but little to the cost.

The air taken from the room would have to be replaced by pure and fresh air from without, and from the highest source possible.

It is said that in early days in Texas, when salt was a luxury, both expensive and difficult to procure, that meat was preserved, fresh and palatable, by hanging it in the tops of high trees, above the strata of air containing putrefactive germs, using it from time to time, free from taint, until nothing was left but the bones. The air should be replaced by large quantities of moderately heated air from external sources, not from moist cellars or damp, sunless places.

The openings for admission of the pure and cooler air should be behind the registers or steam-piping of the hot-water or steam-heaters, which are not to be kept hot enough to deoxygenate it.

I have said but little of the noxious gases, nor of the gaseous emanations of the bodies of the scholars or audience. They will be removed by the same process, except, probably, the carbon dioxide, which will volatilize and become diffused before it is removed.

In conclusion, if you wish to banish the wan, haggard looks from the faces of your pupils, prevent the occurrence of headaches, languid feelings, and other *petit mals*, ventilate scientifically and thoroughly.

Earache.

R	Camphor	10 grains.
	Chloral hydrat.	10 grains.
	Carbolic acid	10 minims.
	Castor oil	½ ounce. M.

SIG.—Drop in the ear warm, filling the ear full, and covering with a cloth wrung out of hot water, as warm as can be borne. This will not disappoint you.—*Northwestern Lancet*.

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PUBLISHED MONTHLY
SUBSCRIPTION TWO DOLLARS
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We are always anxious to receive short communications—500 to 1000 words—on practical subjects pertaining to hygiene. To any one sending us an acceptable article, we will forward THE ANNALS OF HYGIENE for one year *free*.

"Nervous Cranks" or "Hypo's."

A LARGELY growing experience with disordered humanity in general, and disordered nerves in particular, is daily still more and more convincing us of the correctness of the doctrines enunciated in our issue for February last, wherein we announced the belief that a disordered condition of the nervous system is probably the cause of the great majority of disordered conditions of the body at large.

Of course, we do not mean to say that broken bones, dislocations, and strictly surgical injuries and accidents are the results of disordered nervous systems; nor do we mean that, so to speak, *mechanical* organic diseases, such as dilatation of the heart and consequent valvular insufficiency, the result of over-exertion, we do not mean to say that such conditions have their origin in an unbalanced nervous system, but we are becoming very firmly convinced that the cause of all functional diseases, the ultimate *why* our organs do not functionate properly is to be looked for in the condition of the nervous system.

It will be recalled that, in the issue referred to, we likened the human body to a machine, the different organs to the various parts of a locomotive, *all* necessary to the performance of the whole, but no one organ or part possessing *in itself* any power of motion or life, the *parts* of the machine and the *organs* of the

body deriving their vitality, so to speak, in the first instance, from the steam generated in the boiler, and in the second instance from the steam generated in the nervous system.

This is a very simple theory of disease, and, we fear, that its very simplicity will work against its professional acceptance, because, with all due respect for our glorious profession and the noble members thereof, yet the longer we live and observe the more convinced do we become that the majority of the physicians who mould professional opinion accept only that which is but partially comprehensible ; any theory so simple as to be easily and completely understood is generally regarded with scepticism.

Of course, we do not mean to say that the little article published in our February issue covers the whole ground of the causation of disease, but we do mean to say that we believe that in the condition of the nervous system is to be found the cause of susceptibility to, and immunity from, the great majority of chronic or acute, functional or organic diseases.

We maintain that it is *impossible* for the body in which a *perfect* nervous system is functioning, that it is impossible for such a body to be anything but *perfectly* healthy, unless some mechanical cause has operated to mechanically damage some organ of this body, and we hold that in all departures from a healthy standard, save those due to mechanical agencies, the first step has been a departure from the normal condition of the nervous system, as a consequence and result of which a disordered condition of some other organ or part has been made possible.

It is an admitted and well-recognized and undisputed fact that the nervous system generates a *force* ; call this force, steam, or electricity, or vitality, or what you like, it is undeniable that this force regulates all the phenomena of life, whether of healthful or of diseased life, whether of a normal or of an abnormal human body. When a man dies he dies all over ; who ever heard of a dead heart, or a dead stomach, or of dead kidneys in a live body ? When he dies, all of his organs die, and they do so because the nervous system has died first,—that is to say, it has ceased to functionate first in consequence of which the power for the other organs to act is no longer made and they cease to live, even though they may still be capable of duty.

Of course, all death does not originate in the nervous system ; the man who falls dead without a moment's warning, as the

result of valvular heart-disease, dies because his damaged heart (or pump) has reached that stage of damage when it is, mechanically, unable to utilize the force that the nervous system is generating, just as the locomotive with both driving rods broken will stop short, even though the boiler be full of steam; but how rarely do these sudden *mechanical* deaths occur when compared with the enormous proportion of gradual, insidious, slowing, approaching deaths, the result of gradually deteriorating functions, commencing functionally, and by imperceptibly slow degrees becoming organic, and having their origin in a disordered nervous system.

The man who dies from starvation brought about by cancer of the stomach does not, it is true, die *directly* because his nervous system is out of order, but we are strongly inclined to believe that had his nervous system not been previously deranged the cancer would have been an impossibility.

We do not claim that we or any one else are as yet thoroughly familiar with all the deranged conditions of the nervous system that are provocative of disease,—that is to say, there are probably many subdivisions yet to be worked out, but we do believe that nervous derangements can be at present divided into two grand divisions.

(1) Nervous breakdown. (2) Nervous hyperexcitability.

We do not like the expressions “neurasthenia” and “nervous prostration;” the former means nothing and the latter means but little; “NERVOUS BREAKDOWN” means what the words convey,—namely, that there is an appreciable “breakdown” of the structure of the nervous system just as there may be an appreciable breakdown of any machine, and that, as a consequence of this breakdown, the functions dependent upon the nervous system are all below par. Then we have the hyperexcitable nervous system; in which, so to speak, the nervous system is “TOO GOOD;” it is too efficient; it is too active; it not only generates a sufficiency of vital force, or vital steam, but it makes too much; the organs are too bountifully supplied with vigor; not only is there enough vital steam, or electricity, or force for all the phenomena of life, but there is a surplus that is stored up until the reserve becomes so great that an explosion is necessary to relieve the over-charged system. In subsequent issues we will have something to say about the subdivisions of these two great divisions, but now we must hurry on to the true essence of this editorial, the so-called “nervous crank” or “*hypo.*”

The American world is full of so-called "nervous cranks," of men and women who are constantly complaining, who are never ready to admit that they are feeling well, and these persons have been, and are, called "nervous cranks" and "*hypo's*," not only by the unprofessional public but by physicians as well, and, even, oftentimes, by physicians who claim to make a specialty of nervous diseases.

Now we contend that this is all wrong; we have a rather exalted opinion of humanity, and we believe that the majority of human beings would rather be well than sick, and that when one is all the time complaining of this or that bad feeling that there is a real foundation for such complaint, that can be discovered, and remedied, if properly looked for, and this cause will nearly always be found in a deranged condition of the nervous system.

We are willing to admit that there are some few "*morally crooked*" men and women who feign sickness for a purpose, but we hold that there are very few such. We have been long enough in the profession to have noted numberless instances wherein so-called "nervous cranks," those whose complaints have been ignored and regarded as imaginary by both friends and physicians, where such persons have ultimately developed organic disease, the gradual progress towards which has been characterized by the vague complaints that have been considered as imaginary, and that could have been avoided had these illy-defined symptoms been estimated at their true significance.

We have the greatest sympathy and consideration for these people; far from regarding them as "*cranks*" or "*hypo's*," we are constrained to view them as most patient, self-sacrificing persons; who go about their daily duties, when a less unselfish person would be laid up in bed; we pity them because their very unselfishness is working their ultimate physical ruin, yet they receive not the sympathy and encouragement and relief that their *real* condition demands and of which they stand so much in need.

(TO BE CONTINUED.)

Constipation.

IT will probably create some surprise when we make the assertion that almost every person is constipated; yet such is our belief. Even though one may have daily evacuations from the bowels, yet it is our very firm conviction that mighty few per-

sons have *complete* evacuations ; day by day a little, and still a little more is left behind, and this gradually accumulating mass of foul matter, retained within the body, certainly is not, to put it mildly, conducive to health. Indeed, we believe that very much of the so-called dyspeptic and bilious trouble so common nowadays is dependent upon this incomplete emptying of the bowels. In a case recently under our care we administered a large dose of castor oil every night for three weeks, securing therefrom two or three copious movements each day, the aggregate being enormous, with a marked improvement in health. Just as the careful house-keeper, not satisfied with daily dustings, has her periods for general and thorough house-cleaning, so we believe should the individual have his periods for complete flushing and emptying of the bowels, being not satisfied with daily evacuations, lest, as we say, they may not be complete. Among the countless remedies for constipation there is nothing to equal "castor oil ;" no other article approaches it in thoroughness and completeness of action. But from earliest childhood the boy and girl are led to view the idea of a "dose of oil" with horror that grows greater as age advances, so that, because of this antipathy, this most valuable article is not used nearly so often as it should be. And we must admit that this antipathy is a natural one, for the taste of "castor oil" is anything but pleasant, and mix it as we may, more or less of the taste is still there.

Realizing the universality of constipation and recognizing the pre-eminent value of "castor oil," we are glad to learn that a preparation called "LAXOL" can now be had, and that *laxol* is "castor oil" sweetened and flavored, deprived of all unpleasant or nauseating taste, highly recommended, and possessing all the efficiency of plain castor oil. Try it ; you will like it.

Household Garbage Cremation.

WITH great pleasure and perfect justice do we call the attention of our friends and subscribers to the advertisement of "THE HOUSEHOLD GARBAGE CARBONIZER," elsewhere published in this Journal. Cremation is now universally accepted not only as the best but as a perfectly satisfactory method of disposing of garbage ; and, now that a suitable device for household use has been introduced, it should be considered as essential to the complete equipment of the healthful city home, as is the universal sewer connection.



An Aristocratic Baby Show.

At an aristocratic baby show, recently held in England at the house of Mrs. Robert Crawshay, the first prize for weight and general excellence for babies under 1 year of age was awarded to Dermot Browne, son of Lord and Lady Castlerosse, who, though but 11 months old, weighed thirty-three and one-half pounds. The prize for weight and general excellence of development for babies over 1 year of age was awarded to Angela Mildred Baring, daughter of Lord and Lady Ashburton, who was 18 months old, weighed twenty-eight pounds, and had fourteen teeth. Information as to the feeding of these children would have been interesting, as the *British Medical Journal* remarks; and we hope that in future instances of this kind full detail of the management which succeeds in producing such noteworthy results will be published.

A Train-Load of Pills.

Between six and seven million pills of one kind or another are estimated to be the daily consumption in the United Kingdom. In the early part of 1890 the daily consumption of pills was given by the *Chemist and Druggist* as 5,643,961. That paper asked its subscribers throughout the United Kingdom to supply it with estimates of the number of pills consumed in the kingdom daily. The estimates were based on the actual daily sales by their correspondents of ordinary pills, prescription pills, and patent medicine pills. The average of these estimates, which came in from all parts of the country, showed that the daily consumption at that time was considerably over five and a half millions, which would give one pill per week to every man, woman, and child of the population. Taking the average pill to weigh three grains, the year's supply for the United Kingdom would weigh not less than 178 tons, or enough to fill thirty-six ordinary wagons, and making a train-load which would require two powerful engines to pull.—*London Tit-Bits*.

Disease not Inherited.

Recent statistics in England, which would probably not differ materially from those in this country, show the mortality of phthisis to be twelve per cent., the mortality of the same disease among selected lives for insurance being eight per cent. Half the mortality among the insured occurs before the age of forty, and three-quarters before fifty. As the mortality from consumption occurs mainly in early manhood, it is readily seen how important it is for the companies that this disease be detected and dealt with justly. It would seem that the well-established views of heredity might be shaken by the widely accepted germ theory of disease, and by the modern views of the contagion and communicability of consumption. But it must always be remembered that diseases are not inherited; that it is the tendency to certain diseases that is handed down from one generation to another. It is only on certain soil that the seeds may fall that bring forth the rich fruit and ripe harvest of early death.—*Medical Examiner*.

The Health Meter.

Considerable attention has been aroused in certain quarters by the publicity given an instrument called the "health meter," which, it is claimed, will indicate, with extraordinary accuracy, the state of health of any individual. No particulars as to the working of the machine are to hand; but we are given to understand that "those who have witnessed its daily use are delighted with the clearness with which the innermost structure of the various internal organs is delineated in the different mirrors, thereby enabling any one to see the heart, liver, and kidneys performing their usual functions." Thus Mr. F. A. Williams has been endeavoring to bring the "health meter" more into public notice. It is rather surprising to learn that the instrument has been in use for some years in no less than twenty-seven London offices. If such be the case, it is surely strange that so useful an invention has not been more widely heard of ere this. As a rule, we do not require any artificial means to inform us whether our liver is active or sluggish, but, if the invention under consideration possesses but a quota of the virtues with which it is credited, it should prove of the greatest assistance to the life insurance medical examiner.—*The Fortnight*.

Grape Fruit as Medicine.

Grape fruit, *citrus pomelanus*, is just now exciting some attention among physicians as a cure for dyspepsia. This fruit is a native of China and Japan. It was introduced into the West Indies by Captain Shaddock, and from thence into Florida. It is now to be procured of fruit dealers all over the country.

The *Dietetic and Hygienic Gazette* records four cases where a grape fruit diet relieved acute rheumatic gout in a man, dyspepsia in a woman, and muscular rheumatism in two cases. One of the rheumatic men went to Florida to get the fruit in its perfection, and returned cured of all symptoms.

Chemists say that grape fruit contains the most perfect malic acid, and malic acid always conquers uric acid. Grape fruit should be eaten by sucking the pulp; then the bitter element comes out with the acid and fruit-sugar, and rheumatism will leave for parts unknown.

Stringent Rules Governing the Pollution of Streams.

The New York State Board of Health has passed certain regulations that have operated very favorably for the protection of the water-supply of Brooklyn. As a consequence, the agricultural use of quite a large acreage has been restricted at Springfield on Long Island. The farmers having grievances on this account will sue the city of Brooklyn for indemnification for the lost use of their farm-lands that border on that city's water-courses. The rules of the State Board were put in force in August, 1894; the particular clause in those rules which seems to have aroused a feeling of antagonism among the Long Islanders is one which prohibits the fertilizing of land within 50 and 100 feet of the streams. The enforcement of this law will throw into disuse large tracts of land which have heretofore been cultivated as vegetable gardens by the tenants of the houses. This means a great depreciation in the value of the property, the owners say, and they are inclined to question the power of the city to practically condemn the land without the payment of damages. The interested parties are considering the matter with a view of petitioning the authorities to so amend the objectionable law that their tenants may continue in the same old way so far as concerns the cultivation of their gardens.—*The Journal of the American Medical Association*.

The Hygiene of the Future.

The great problems in medicine to-day are hygienic, not therapeutic, though therapeutics seems to be getting the better of diphtheria. The most desirable thing in the affairs of man is, first, the making of people healthy, and, second, the making of them happy. The dyspeptic Puritanism which whines over the necessity of suffering as a means of grace can have no place in a superstition-free and scientifically-enlightened philosophy. What we want, and what hygiene is yet to give us, are comfortable homes for all mankind, aseptic alike of the germs of zymotic disease and of the taints of the common vices, where noble and healthful men, noble because they are strong and healthful, and sweet and beautiful and healthful women, beautiful and sweet because they are healthful, shall rear their little families of disease-unblighted children, happy because healthful, and giving promise of future attainment in the good, the beautiful, and the true,—promises which shall not be broken because hygienic medicine has made the keeping of such promises possible.—PROFESSOR H. A. CORTELL, University of Louisville.

A Russian Test of Vaccination.

The St. Petersburg correspondent of the London *Lancet* furnishes an abstract of a dissertation on small-pox and vaccination, presented to the St. Petersburg Academy of Medicine last year, which is interesting as much from results set forth as from the rarity of Russian statistics on these subjects. The author, Dr. A. N. Sotin, was led to collect his statistics in the following manner: the *volost*, or subdistrict, of which he was in charge, lay in the western corner of the Mologa *uyezd* or district, in the government of Yaroslavl. Observing that an epidemic of small-pox was approaching from the East, Dr. Sotin personally examined every child under 14 years of age in his district before the disease arrived. The total number of children examined was 1564, distributed among 665 families and in 30 villages. He found that 1055 had been vaccinated and had visible scars; 75 children formed a second group of doubtful cases, which were said to have been vaccinated, but on which no scars were visible; and 434 had never been vaccinated. The small-pox arrived and a widespread, though not very fatal, epidemic resulted. It was then

found that of 1055 "vaccinated" children only 16, or 1.3 per cent., had contracted the disease; of the 75 "doubtful" 35, or 46.6 per cent., suffered; while of the 434 "unvaccinated" children as many as 244, or 58.6 per cent., caught the disease. In other words, the unvaccinated suffered to an extent forty-five times as great as the vaccinated. Further, it was observed that in 189 families all the children were unvaccinated, and in these families if one child sickened with the small-pox the disease spread, with only seventeen exceptions, to every other child in the house. On the other hand, in houses where some children were vaccinated and others not, the disease always attacked the last and the first escaped. Dr. Sotin believes that there is no danger from vaccination performed during a small-pox epidemic, but that general vaccination will with certainty cut short an epidemic, and that the immunity following vaccination does not last more than eight years, at the end of which time revaccination is necessary.

Aggressive Cleanliness.

The house mother cannot do her home circle greater injury than to constantly be exhausted from overwork, so that she finds it impossible to be responsive, sympathetic, and loving to them. It is hard for our house mothers to realize this; they quite believe that in doing all of the hard work with which they are so constantly over-trying themselves, they are prompted entirely by affection for their families.

We wonder if they ever reason it out in their own minds, how it can possibly concern the others of a family whether or not the stockings or dish-towels are ironed, or how often the verandas are scrubbed? If they sit down for a few moments of honest self-examination and sift the motives that prompt a great many of their daily tasks, they will probably be horrified to find how much unnecessary work they do in order to be called good house-keepers by their neighbors.

Are "vanity" and "selfishness" words too harsh to use in such cases? They do sound very harsh, we must admit. Yet these women are daily robbing their dear ones of something for which no amount of imaginary neighborhood praise can ever atone.

Question the children in any family, and they will tell you, "We don't care anything about how particular mamma is in her

house-keeping, but we do just love to have her play with us and pet us and tell us stories and read to us."

Consult the average husband and he will say, "I would rather that my wife should neglect any home duty than be so tired that she is cross and unsympathetic when I get home from my daily tasks."

No woman can be tender and responsive when every nerve is tired and aching. She grieves to find herself so "snappish," and fears that she is degenerating—that she is losing her even temper—when the trouble is not moral at all, but wholly due to nervous strain.

Every woman who finds herself growing, without apparent reason, harsh and bitter in her judgment of others, fretful or easily grieved or startled, may know positively that she is overtaxing her physical strength and, as we said before, robbing her family. Let this woman bravely promise herself to omit every unnecessary household task, regardless of the fancied opinions of others, honestly trying each seeming duty by the question, "Will or will it not add to the health or happiness of my dear ones?"

House-keepers may console themselves and become independent of their neighbors' criticisms by the thought that, even if they do kill themselves trying to be considered authority in household matters, some one is sure to condemn their methods.—*Philadelphia Press*.

Bicycling for Women.

The *Boston Medical and Surgical Journal* contains an article on this ever-present subject by Dr. Charles W. Townsend, and another by Dr. James R. Chadwick. Dr. Townsend's article is based upon the results of a series of inquiries made to a number of female physicians residing in Boston and Massachusetts. Eighteen answers were received. All but one of the writers stated decidedly that they considered bicycling of value to the average woman under proper conditions. Nine had seen no harm from bicycling. The others reported some minor troubles due to intemperate exercise. One had seen a serious ovarian trouble directly due to riding long distances at about the menstrual period. One reports a case of renal hæmorrhage, a case of hæmorrhage of the womb, a case of inflammation of the ovary with anteflexion, and a case of miscarriage. The question, "Would you advise the bicycle in any form of uterine disease?" was

answered in the affirmative by all but two. A number of cases are reported showing improvement in retroverted and also in enlarged and even prolapsed uteri. Several speak of the beneficial use of the bicycle in patients to whom walking was difficult or impossible. "It is interesting to note," says Dr. Townsend, "that the favorable criticisms were not obtained from bicycle enthusiasts, as only one of the physicians had used a bicycle herself."

Dr. Chadwick's article is devoted mainly to the subject of bicycle saddles for women. His attention was called to this subject from having seen two cases in which badly-fitting saddles had produced leucorrhœa and vulvitis. Dr. Chadwick states that no serious attempt had as yet been made to produce a saddle adapted to woman's anatomy. The result is that women have generally had great difficulty in having a saddle so adjusted as to be rendered comfortable, in other words, to avoid pressing unduly on the vulva. Dr. Chadwick's opinion seems to be that bicycle saddles should be especially made for women, that they should have as little projection in the front as possible. With a properly-fitting saddle, he considers bicycling an excellent mode of exercise.—*Medical Record*.

Work and Longevity.

An English statistical report enumerates thirty-three persons upward of one hundred years of age alive in Great Britain in the year 1893. The oldest of these, as usual, was a woman, whose age was one hundred and sixteen. One of the most striking facts in relation to these centenarians is that they lived lives of simplicity and industry. In commenting upon this fact, the London *Lancet* remarks:

If in any direction it is allowable for competitors in the race of life to dispense with self-control, it would appear that they may to a great extent use this liberty with respect to physical and mental exertion. Nature has made large allowance for the inevitable necessity of labor, and has even practically, in some cases, sanctioned an overstrain of energy, provided that due care be taken to conserve the vital powers by temperance in other things.

It is not useful work, but worry which kills men. Overwork of the stomach, liver, or kidneys is vastly more damaging to a

man than overwork of the brain or muscles, since so long as the stomach is intact, overworked muscles may be easily repaired ; and so long as the liver and kidneys retain their integrity, the consequences of excessive brain work are easily removed by the elimination of the resulting poisons from the body. Millions die from overwork, but it is overwork at the dinner-table rather than in the field, the work-shop, or the counting-room. Hard work is healthful. The majority of men, and women also for that matter, are suffering, not from overwork, but from too light work. More work is required. It may be more mental activity or more muscular exercise. Evil results from work flow not from excessive work, but from the neglect to give each class of organs its due and proper amount of exercise.—*Medical Examiner*

Consanguinity, Marriage, Disease, and Heredity.

Royal and imperial heredity of disease has received an airing owing to the charges made between the Prussian and Russian reigning houses as to the causes of their respective ill healths. When the Emperor Frederick developed cancer, the Germans ascribed the cachexia to the admixture of bad blood coming from his mother, who was a granddaughter of Paul I. of Russia. The Russians now retort by ascribing their late Emperor's illness to the diseased blood coming from his grandmother, who was a Prussian princess and a sister of William I., and wife to the Czar Nicholas ; this princess died of cancer, which was also the cause of death of her mother, the noted Queen Louise of Prussia of Napoleonic times. The royal families need an influx of either good peasant or solid burgher blood. In such cases as the above intermarriages should not be countenanced. The French Academy of Medicine has lately discussed the subject of consanguineous marriages and their results. All the conclusions point to the fact that these marriages will transmit either ill or good health. In opposition to the evil effects above detailed as results of royal intermarriages we are given the report from the diocese of Batz, in Brittany, where as a result of close intermarriage, out of a population of 2733 souls, 490 carry the name of Lehuédé. Out of these the ratio of exemptions from military service per 1000 amounts to only six, while in the next two districts, where close relationship is not as marked, these amount to 143 and 145 per

1000 respectively. In 1670 four families from Picardy settled at Fort Mardick, near Dunkirque, and the descendants of these, in 1886, formed a population of 1481 souls possessed of the most vigorous constitutions, proving that good sound constitutions are as transmissible as bad ones.—*National Popular Review*.

The Best Floor to Live On.

M. Korosi, the Hungarian hygienist, has lately investigated the effects of living in cellars, ground floors, and upper floors upon the duration of life. He found that the dwellers of cellars lived to about thirty-nine years and eleven months; those on the ground floor to forty-three years and three months; those on the first and second floors lived to forty-four years and two months; while those on the third and fourth floors lived only to forty-two years.

All things being otherwise equal, the observations of M. Korosi may be accepted as showing the different effects upon longevity by the different selected planes of residence. The air of cellars or basements is never healthy, nor can such localities be ventilated except at considerable expense; this also implies ground air and ground moisture contaminations arising from the inability to remove the additional contamination arising from the animal exhalations of the persons living there, along with the heavier ground air from the street and yard that of necessity pours down into such spaces. Those living on the first and second floors seem to enjoy the longest lease of life; this is as might be expected from the greater freedom that the air of those floors enjoys from foul gases, microbes, and germs, animal emanations, and from street dust. Much here depends, however, upon the character of the stairs; a steep, hard stairs tends to shorten the duration of life, while an easy, low-step stairs, broken by easy landings at every eight or ten steps, will lengthen its duration. The spiral stairs, winding, screw-like up in a narrow cylindrical space, are life-shorteners. These stairs save space and destroy life, and are quite common in many parts of Europe, and where one has to climb them to the third floor the exertion is slowly but surely telling. The effects of stair-climbing are visible in the two years of less life enjoyed by the inhabitants of the upper floors.

These observations tally with those of Strassmann, of Berlin,

with the exception that in Berlin the basements give less mortality than the immediate street floor, which speaks well for the humanity of the Berlin microbe. In Berlin the basements are occupied by a well-to-do class, whereas in Budapesth, the point observed by M. Korosi, the basements are occupied by the very poorest. We should not neglect to observe that those who can afford a first or second floor flat are those who, as a rule, are better clothed, better fed, and capable of surrounding themselves with better hygienic conditions than the poorer of either the basements or of the upper floors.

The dwellers of the two first floors are, besides, persons better off in the world and not as likely to suffer any physical ill effects due to occupation as their less fortunate fellow-mortals on the other floors, although we cannot overlook the fact that these better favored ones probably do more worrying, and that they are apt to suffer more from diseases of the kidneys and of the circulatory system that arise from worry and anxiety; these favored ones would also be more likely to fall victims to acute brain or nervous affections than the others. So that were we to people the first and second floors with the less worrying and less perplexed but poorer class, the length of life of these would probably go far in excess of the forty-four years and two months.—*National Popular Review*.

At Forty, Fool or Physician.

It is a true saying that, in regard to one's self, at forty we are either a fool or a physician; this being that, at forty we either have found out how to live rightly, in a physiological sense, and that at that age we have sufficient discretion to map out our course and follow it, or that we have learned nothing and know nothing, and are just fools enough to keep on sliding down the pathological grade. In the first instance, given a good heredity and a medium physique with an average stock of health, a man bids fair to reach old age, and in the fool condition he bids fair to die at any provocation or a properly reached conjunction, not of the stellar or planetary system, but of exposure, over- or under-feeding, of over-exertion or of anxiety. These are all points which the life examiner should well bear in mind. It is but an exemplification of the old scriptural saying, that the battle is not always to the strong, nor the race to the swift.—*Medical Examiner*.

The Influence of Occupation on Length of Life.

During thirty-four years and eight months there died in the State of Massachusetts 161,801 men over twenty years of age, whose occupations were specified in the registry of their disease. The average at which they died was fifty-one years. The number is so great and the period covered is so long that by the study of the classification of the employment of those dead, we can get a very fair idea of the comparative ages at which men in different occupations and in an ordinary healthy community are swept away by death.

It is noticeable that of all who died, the cultivators of the earth attained the highest average age, about sixty-five and a half years, and they made up one-fifth of the total number. We all know why farmers as a class, not only in this but in all countries, should live to a ripe old age. They enjoy good air and are free from many of the cares that beset those living in cities, to say nothing of the constant noise and excitement which destroy the nerves and rack the system. It is rarely that a farmer dies before his hair is gray. Farmers, as a rule, too, do not to any degree indulge in alcoholic beverages. One important fact must be taken into consideration concerning the farmer and his age, which is that the weaklings of the farmer's family do not, as a rule, remain on the farm after attaining an age fitting them for some pursuit. Such are sent to the cities to choose a trade or profession, and only the strong and healthy ones who are fitted for the work are retained upon the farm.

The class next to the farmers in the average of life is that class called "active mechanics abroad," such as brickmakers, carpenters, masons, tanners, millwrights, riggers, calkers, slaters, and stone-cutters; but the average age of the 12,000 of those who died in Massachusetts during the period mentioned, was much below that of the farmers. It was only about fifty-two and three-fourths years,—a little over a year more than the average age of all the classes together. Of all these out-door trades, the ship-carpenters showed the highest age,—more than fifty-nine, and the slaters, who pursue a dangerous calling, the lowest,—about forty. The average age of all the others of these trades, except the stone-cutters and brickmakers, was about fifty-one, and above the average of all the classes.

Next to the active mechanics abroad come the professional men, whose average age at death was over fifty-one. Of this

class the longest-lived were the judges and justices, proverbially celebrated for their great age. They lived on the average sixty-four years, and led all the trades and professions except that of the farmer, whose average was over sixty-five, and those denominated as gentlemen, who average sixty-eight,—the highest average age attained by any of the classes. The deaths in only six different occupations were at an age on an average above sixty. They were (1) the gentlemen, sixty-eight; (2) the farmers, sixty-five; (3) the judges, sixty-four; (4) the light-house keepers, sixty-three; (5) the basket-makers, sixty-one; and (6) the pilots, sixty.

In some countries, clergymen are the longest-lived; but in Massachusetts they fell below all these classes, the average age of the 1000 of them who died during the thirty-four years being only a little above fifty-nine. Of the professional men, those set down as students died at the earliest age, the average being only about twenty-three; then came the professors, well over fifty-seven years; then the lawyers, fifty-six years; then the physicians, over fifty-five years; public officers, fifty-five. Sheriffs, constables, and policemen died at the average age of fifty-three, while editors and reporters were gathered into the tomb before they had completed their forty-seventh year. The lives of comedians were also short, hardly reaching thirty-nine years on the average, and dentists were cut down at the average age of forty-two. The artists also died early, their average being forty-four years. The musicians lived only to forty-two, and the teachers died about at the same age. The merchants, financiers, agents, and clerks came next after the professional men; and one of the classes included under this head, that of gentlemen, exceeded all others in its average, over sixty-eight years. The bankers, who lived on the average to more than fifty-nine years, were the longest-lived of this class, and then came bank-officers, nearly fifty-six; merchants, over fifty-four; booksellers, about fifty-three; manufacturers, fifty-two; and innkeepers and brokers, fifty years. The shortest lived of this class were the telegraphers, who died at the average age of twenty-eight. Clerks and book-keepers also died early, at the age of thirty-six. Railroad agents and conductors departed this life on the average at about forty years, and druggists and apothecaries at forty-two, while saloon and restaurant keepers are put to final rest at forty-one.—*Washington Star*.

The Physiological Effects of Bicycling.

The June *Scribner's* contains a symposium of articles on various phases of the bicycle fashion which have come into full bloom this spring. The most valuable of them for practical purposes is the short paper by Dr. J. West Roosevelt, entitled "A Doctor's View of Bicycling." He points out that the fashionable exercise has effect on a great number of muscles besides the legs; in fact, the ubiquitous soreness that a novice enjoys will convince him easily that the trunk, loins, shoulders, and arms have had their part of the work too. "In previously sedentary persons a considerable increase in the circumference of the chest takes place, the increase often amounting to one or two, and sometimes even three inches. The arms and forearms also grow firmer, and it is said that in them also quite a marked increase in size has been seen."

The legs and the muscles connected with respiratory processes are directly exercised, of course. The others are more indirectly benefited.

"There are two reasons for this. One is that exercise, if not excessive (and especially exercise which is pleasurable and which is taken in the open air), almost always makes the appetite greater, the digestion completer, the heart stronger, and the circulation better; there is a generally improved tone in every organ of the body, simply because all are better and more abundantly fed, including the muscles, both those which are actively used and those which are not. The second reason for the increase of power and size of many muscles which are not connected with the lower extremity, and which the superficial observer would think were not called into play in bicycling, is that they really are in active use, although they appear to be at rest. For example, a large number are concerned in maintaining the equilibrium, so that the wheel does not fall sideways. This requires at times only a perfect balance of the forces of opposing muscles, and at others enough contraction of some of them to shift the weight by inclining the body to one side or the other. Others fix the lower portion of the spine and hip-bones so as to enable the great thigh-muscles to work effectively. In the arms and forearms very delicate adjustment is required in steering, and when hill climbing or increased speed demand it, a great deal of force is expended by the arms in the firm grip and strong upward pull on the

handles which counteracts the strong downward push on the pedals."

THE EFFECT ON THE HEART.

"There is one muscular structure which bicycling, like every form of physical exertion, compels to do extra work,—the heart,—and upon its integrity depend not only health and physical vigor, but also life itself. It has often been asserted that wheeling is apt to injure the heart. Is this so? I can only say that, theoretically, it is impossible for such harm to result in sound people, save from attempts to attain a high rate of speed, or from prolonged or fatiguing rides, or from climbing hills which are either very steep or very long; and practically I have been unable to find authentic records of any case in which heart-disease has been caused by the use of the wheel in a sensible and moderate way. It may be added that the existence of organic heart-disease does not, in the opinion of a number of physicians of great ability, always debar cycling. Indeed, the wheel is actually recommended by some as a valuable aid in the treatment of certain affections of this organ. There is a striking resemblance between bicycling and walking, so far as their effects on the heart are concerned; either may be healthful or harmful. Excessive exertion in either is dangerous, and modern exertion is beneficial. That cycling is *more apt* to do harm than walking can hardly be denied: there is much more temptation to ride than to walk too fast on the level; and the hill climbing on the machine, even at a moderate speed, is far more of a strain than walking up the same hill at a speed proportionately moderate, and very few people seem to have sense enough to get off and walk when going up hills. It is safe to assert that for a person capable of acting with common sense no harm will come from either, and certainly no more from one than from the other. If either in wheeling or walking shortness of breath is felt, one knows that an unwonted strain has been thrown upon the heart and lungs,—and the intensity and duration of the breathlessness fairly measure the degree of strain. It is safe to assume that if neither shortness of breath nor palpitation of the heart be felt, the strain is not excessive. A physician who has given much thought to the subject says that, so long as the cyclist can *breathe with the mouth shut*, he is certainly perfectly safe so far as heart strain is concerned."—*Review of Reviews*.

Palatable Dishes without Milk.

There is a growing class of invalids who find the use of milk in their diet inimical to their progress healthward, while those upon whom the preparation of their food devolves are often greatly perplexed to know what to provide that will afford the requisite variety from day to day, supply the proper nourishment, and at the same time prove appetizing and palatable. As an aid to such, as also to those house-keepers whose milk-supply must of necessity be limited, we offer below recipes for several dinners requiring no milk for cooking or serving :—

Split-Pea Soup.—For each quart of soup desired, simmer a cupful of split peas very slowly in three pints of boiling water for six hours, or until thoroughly dissolved. When done, rub through a colander, salt, and add for flavoring a slice or two of onion or celery. Reheat, and when boiling stir into it two teaspoonfuls of flour rubbed smooth in a little cold water. Remove the slice of onion with a fork just before serving.

Tomato and Vermicelli Soup.—Cook a cupful of broken vermicelli in a pint of boiling water for ten minutes. Turn into a colander to drain. Have boiling two quarts of strained, stewed tomato, to which add the vermicelli. Season with salt and serve hot.

Canned Green Pea Soup.—Rub canned green peas through a colander to remove the skins. Add boiling water to make of a proper consistency, season with salt, and serve hot. If desired, the soup may be flavored with onion or celery, the same as directed for split-pea soup.

Swiss Lentil Soup.—Cook a pint of brown lentils in a small quantity of boiling water. Add to the lentils, when about half done, one medium-sized onion cut in halves or quarters. When the lentils are tender, remove the onion with a fork, and rub the lentils through a colander. Add sufficient boiling water to make three pints in all. Season with salt, reheat to boiling, and thicken the whole with four tablespoonfuls of browned flour, rubbed to a cream in a little cold water.

A lentil sauce prepared in the same manner as this soup, only of somewhat thicker consistency, makes excellent dressing for rice or potato.

Croutons.—Croutons for soup are prepared by cutting stale bread into small squares of cubes, and browning thoroughly in a

moderate oven. Put a spoonful or two of the *croutons* in each plate, and turn the hot soup over them.

Macaroni with Tomato Sauce.—Break a dozen sticks of macaroni into two-inch lengths, and drop into boiling water. Let it boil for an hour, or until perfectly tender. In the mean time prepare the sauce by rubbing a pint of stewed or canned tomatoes through a colander. Heat the tomato to boiling and thicken with a little flour; a tablespoonful to the pint will be about the requisite proportion. Add salt to season. Dish the macaroni in individual dishes, and serve with a quantity of the sauce poured over each dish. Tomato sauce prepared in the same manner forms a very palatable gravy for boiled or baked sweet-potato.

Apple Macaroni.—Stew some nice tart apples, sufficient to make about two pints and a half of rather thin sauce, sweeten a little, put into the inner cup of a double boiler, heat to boiling, and cook in it a cupful of macaroni broken into inch lengths from one to two hours as needed. Serve hot.

Graham Puffs.—Beat the yolks of two eggs in two cupfuls of ice water; then add gradually, beating well meantime, three and one-fourth cupfuls of Graham flour. Continue the beating, after all the flour has been added, until the mixture is light and full of air-bubbles. Add last the whites of the eggs, beaten to a stiff froth, and bake at once in heated irons.

Rolls and Sticks.—Beat together until all of a foam the yolk of one egg and one-third of a cup of ice water. Into this incorporate flour enough to make a dough which will clear the board without dusting with flour, but not so stiff that it will be difficult to shape. Shape and bake as directed for breakfast rolls in the March number. For the sticks make a smaller roll not thicker than one's finger and cut in long lengths. Less time will be required to bake.

Nut Crisps.—Mix together thoroughly one and one-half cups of coarse Graham flour and one-half cup of hickory-meal, prepared by pressing the chopped meats of nuts through a fine colander. Make into a rather stiff dough with ice water, knead well, roll into a sheet as thin as brown paper, cut with a knife into squares, and bake on perforated tins until lightly browned on both sides.

Browned Wheat.—Put some wheat in thin layers on baking tins, and brown lightly and evenly in the oven. Cook in a double boiler four parts of boiling water to one of grain, for three or more hours. Serve with a nut meal prepared as for nut crisps.

Baked Parsnips.—Wash, scrape, and divide; drop into boiling water a little more than sufficient to cook them, and boil gently till thoroughly tender. There should remain about one-half pint of the liquor when the parsnips are done. Arrange on an earthen plate or shallow pudding dish, not more than one layer deep; cover with the juice, and bake, basting frequently until the juice is all absorbed, and the parsnips delicately browned. Serve at once.

Browned Sweet-Potato.—Slice cold, cooked sweet-potatoes evenly, place on slightly oiled tins in a hot oven, and brown.

Mashed Beans.—Soak over night in cold water a quart of nice white beans. When ready to cook, drain, put into boiling water, and boil till perfectly tender and the water nearly evaporated. Put the beans through a colander to remove the skins, season with salt, put into a shallow baking-dish, smooth the top with a spoon, and bake in the oven till dry and mealy throughout, and nicely browned over the top.

Pineapple Tapioca.—Soak one cup of pineapple over night in one and one-half cups of water. Add two and one-half cups of water and cook in a double boiler until transparent, then add one cup of sugar and one juicy pineapple minced fine with a sharp knife. Mould, and serve cold with or without cream.

Roasted Almonds.—Shell fresh sweet almonds, and blanch by pouring boiling water over them; let them stand for two or three minutes, drain off the hot water, and drop into cold water. Press between the thumb and fingers and the kernels will readily slip out of the brown covering. Place the blanched nuts on perforated tins, and brown lightly in the oven. Filberts may be blanched and browned in the same way.—*Good Health.*

International Conference Regarding the Sanitary Administration of Railways and Navigation.

The conference will meet at Amsterdam the 20th and 21st of September, 1895.

The object of the meeting in general is to consider the methods adopted by various countries to insure the interests of travelers both by land and sea. To this end it has been thought wise to unite at a congress members of the medical profession who are especially interested in matters pertaining to sanitation in travel.

The work of the conference is to be divided into three sections, as follows :

- (1) Guarantees of the capacity of officials.
- (2) Organization of the medical service.
- (3) Hygienic interests of employés and travellers.

In view of the international importance of many questions on the programme, the committee has invited delegates to be present from various countries and from railway and navigation corporations. Papers will be presented either in French, German, or English.

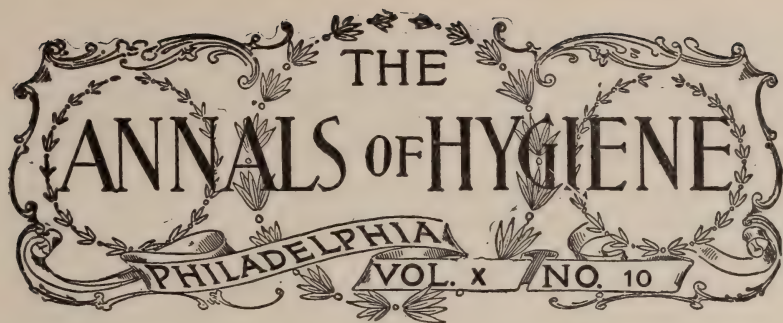
The president of the conference is to be Professor H. Snellen, of the University of Utrecht, one of the foremost ophthalmologists of Europe. Dr. B. Joy Jeffries, whose admirable work on color-blindness is universally recognized, has been invited to represent America. All communications should be made to the secretary, Dr. Pijnapple, Stradhouderskade, 60, Amsterdam.

Evidence of Assininity.

If a fellow is called an ass and he kicks, what is the weight of evidence in the case?—*American Medical Journal*.



THE leading article in THE MONTHLY ILLUSTRATOR for August is, as usual, upon the work of a prominent American artist. In this case it is Frederick Dielman, more than a dozen of whose paintings and sketches serve as admirable illustrations to an appreciative paper by Alfred Trumble upon the work of this "painter of the beautiful." This is followed by the fourth of Arthur Hoeber's papers, entitled "My Pet Subject," which serves as a vehicle to exhibit the preferences in choice of *motif* of several well-known men and women. Thus the first twenty pages of THE MONTHLY ILLUSTRATOR for August exhibit the work of not less than twenty artists, including Frederick Dielman, W. Verplanck Birney, M. F. H. de Haas, James A. Fraser, W. T. Thomson, James Symington, and others of reputation.



COMMUNICATIONS.

A Plea for the First Permanent Molar.

BY EDWARD BUMGARDNER, M.D., D.D.S.,

Lawrence, Kansas.

JOHN GOODSIR, a Scotch surgeon, first announced the true relation of the first permanent molar to the other teeth when he wrote, "The six-year molar, when considered in its anatomical relations, is decidedly a tooth of the first set, but if considered physiologically it must be classed with the permanent teeth." To make this plainer, it may be stated in another way. When the tooth is erupted at the age of six years, it apparently belongs to the temporary set, but it is never shed to give place to another tooth, and, its period of usefulness being longer than that of any other tooth, it must be classed in the second set. At five years of age the child has twenty teeth, ten in each jaw, as represented by the small arches in Fig. 1. These are all of the temporary teeth, and they are destined to be replaced by twenty teeth of the permanent set. Thus, the permanent incisors, 1, 2, succeed the incisors, A, B; the permanent cuspid, 3, takes the place of the cuspid, C; and the bicuspid, 4, 5, correspond to the molars, D, E. Absorption of the roots of the temporary teeth begins at about the fourth year, and between the ages of seven and twelve these teeth are succeeded in regular order by the corresponding permanent teeth. But at the age of six, before any of them have been shed, a large grinder erupts posterior to the second molar, E. This is the first permanent molar, 6. It may be necessary to

explain that the temporary and permanent arches do not differ in size, as might be inferred from Fig. 1, but that nearly all growth takes place behind the temporary molars. So that when this tooth erupts it is in perfect anatomical relation with the temporary arch. This, however, does not alter the fact that it is intended to last during all the remainder of the child's lifetime. If it is lost, it will never be replaced. Being the largest tooth of either

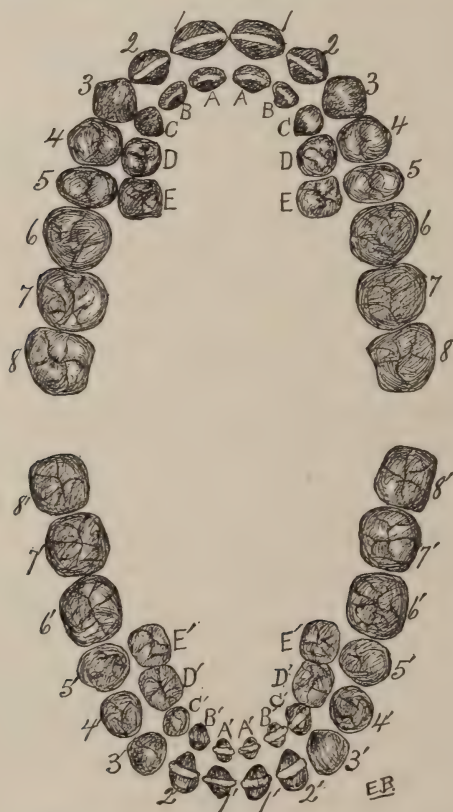


FIG. 1.—Upper and lower arches of temporary and permanent teeth.

set, having the longest period of usefulness, and being, therefore, the most valuable of all, its preservation is very desirable. All the reasons for preserving the teeth can be urged with especial propriety in favor of this one. The extraction of no other tooth is liable to interfere so greatly with mastication or to produce so many evils. When we remember that it is situated in the part

of the jaw where the greatest extent of growth should take place, we can understand how its early extraction may interrupt a proper development of the jaw. In fact, the loss of this tooth is one of the most frequent causes of irregularity in the permanent arch. Many people think that if there is but little space left in after-years between the second bicuspid, 5, and the second molar, 7, the extraction of the first molar is of little consequence. No greater mistake could be made. Even if all the space be filled, it is sure to be at the expense of jaw development or of the regularity of the remaining teeth. When the tooth is extracted before development is complete there seems to be an effort on the part of nature to fill up the gap. The anterior teeth move, or rather

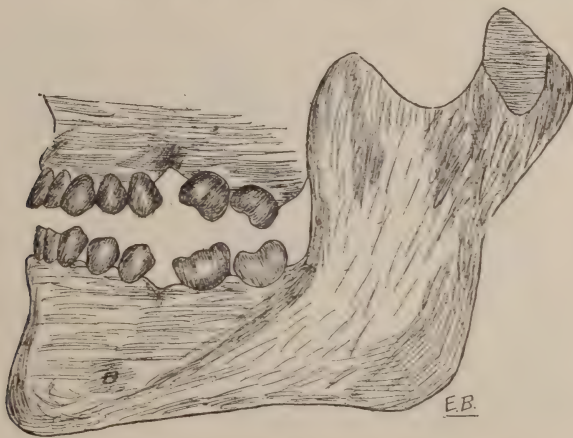


FIG. 2.—Showing irregularity caused by the extraction of the first permanent molar.

tilt, backward, and the posterior molars incline forward, producing the irregularity shown in Fig. 2. Compare with Fig. 3, and observe how this interferes with the normal occlusion of the teeth and with mastication. In the upper jaw there is usually also a contraction from side to side which produces a V-shaped palate and interferes with articulation.

By all means the first permanent molar should be preserved. Unfortunately, it is peculiarly liable to decay. It apparently decays earlier than the second molar because it has been in use six years when the latter is erupted. But the diseases of infancy frequently leave their traces in imperfect tooth-development, especially in the enamel of this tooth. A perfectly-formed molar

has on the grinding surface several cusps separated by rounded grooves. In the development of the enamel calcification begins at the top of these cusps and continues till they are joined at the grooves. Too often the development is imperfect at the union of these enamel domes, leaving a fissure instead of a groove. In these fissures minute particles of food are lodged, and we have the old story of dental decay, decomposition, the formation of an acid, dissolution of the lime salts of which the tooth is composed, a cavity. Though it never begins to decay till the enamel has been penetrated, dentine is softer and decays much more rapidly than enamel. For this reason decay is always insidious, but never more so than in the first permanent molar. This can be

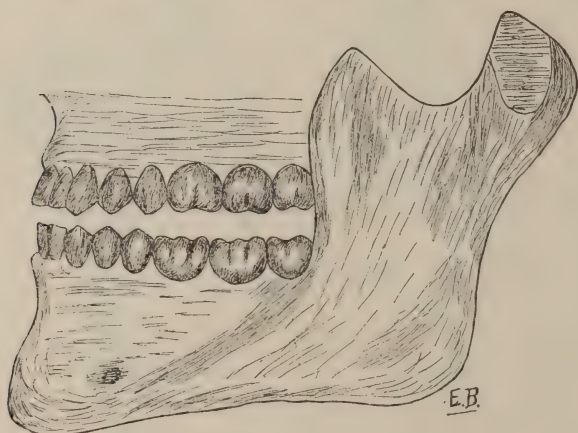


FIG. 3.—Showing normal position of the permanent teeth.

appreciated by reference to Fig. 4, which represents a section through the middle of a lower molar. It is a common thing to find this tooth reduced to a mere shell in the mouth of a child ten or twelve years of age. Even then there may be no pain until the pulp is exposed, or the undermined enamel is broken, when the tooth may be too far gone to be saved by a filling. It is unconscious, though almost universal, neglect of this tooth that makes dentists regard it as the most difficult one they have to save.

The remedy is the same as for all other unhygienic evils,—proper education. One trouble with all hygienic teaching is that it does not begin soon enough. It is not sufficient to teach hygiene as a science in the high school. Most children would

lose this tooth before they would learn in the high school how to preserve it. Primary and intermediate teachers have a great responsibility as guardians of the health of their pupils, for the controllable activities of childhood form the tyrannical habits of later life. To attempt to develop the mind while neglecting the body is worse than useless. Teachers need to know and to practise more of the laws of health ; and they cannot begin too early to train their pupils by precept and example towards physical perfection. Parents share these responsibilities with the teacher, and yet it devolves upon her to see that the children do not suffer unnecessarily from parental ignorance. In the high school the science of hygiene should be so taught that the next generation

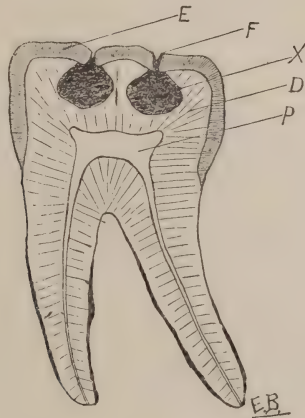


FIG. 4.—Showing how decay progresses in the dentine after beginning at fissures in the enamel. *D*, dentine ; *P*, pulp, or "nerve;" *E*, enamel ; *F*, fissure ; *X*, decay.

will be raised to a higher plane by means of the unalterable laws of heredity and prenatal culture. No department of hygiene is more effective than that relating to the teeth. The statement that the first permanent molar is the most difficult tooth to save only means that it should have earlier and more careful attention. If it receives the proper attention from the time of its eruption, it can nearly always be saved until old age. While neglect of the temporary teeth is inexcusable, the sixth-year molar must be recognized as a *permanent* tooth. In most cases it will require some attention from the dentist in order to be retained during its long period of usefulness. Parents, you will not be blameless if

your boy or girl is maimed by the loss of this tooth. Ignorance on your part will not excuse you. Those who have made a professional study of the subject are willing to instruct you. Do not wait for the child to complain of toothache, but, soon after this tooth has erupted, let it be examined by a competent and conscientious dentist, and trust him as to what is best for it and for your child.

Address on the Origin of Sanitation.¹

BY J. SPOTTISWOODE CAMERON, M.D. (EDEN.),

Medical Officer of Health to the City of Leeds; Consulting Physician to the Huddersfield Infirmary, etc.



LOOKING back through the long vista of the past one is struck by the importance attached by the first great master in physic to the department of prophecy. To this day the description given by Hippocrates of the man about to die is as vivid and as truthful as when it was first written. But while the foretelling of the probable course of an illness was then, and still remains, among the most important powers of the practising physician, the means at his command for arresting in their earlier stages the processes which make for death have enormously increased. There came, indeed, a time, which some of us are even old enough to remember, when pathology ran the risk of being regarded as little else than morbid anatomy and the classification of disease a mere cataloguing of the phenomena immediately preceding death. Indeed, a certain hopelessness, begotten of this mistake, threatened to sap the energies of those engaged in the treatment of the sick. But the natural resilience of science enabled medicine, after a time, to look rather to the causing than to the resulting factors as the basis of classification. Nor was the threatening of fatalism, which too great an attention to induced conditions brought about, entirely without its uses. Though a damaged organ could not be replaced, the processes by which it had arrived at the incurable could be investigated, and their action in another person possibly

¹ From the London Lancet. Delivered in the Section of Preventive Medicine at the Congress of the British Institute of Public Health at Hull on August 9, 1895.

forestalled ; while the study of processes, carried still further back, led not only to a better knowledge of, and better means of dealing with, the causes of disease in the individual, but to a clearer conception of, and greater command over, those etiological factors which had favored their selection or development.

When Sydenham had, two centuries ago, introduced a rational and hygienic element into treatment, he had also, as it were, pointed in the direction to which, when the hopelessness referred to came upon us, we might look for the prevention of disease itself. A belief therefore in the value of cleanliness, fresh air, and reasonable diet, along with a certain not altogether unhealthy scepticism as to the need in every case of drugs, was not the least important weapon in the armament of the young physician some thirty years ago, and although new drugs have ever found new votaries, and many and valuable means of treatment have been put into our hands, the absolute usefulness of all mere remedial measures is even at the present day looked upon as infinitely little compared with the shielding influence which the physician exercises in placing his patient under the most favorable circumstances for nature to effect her cure. And it is largely this belief in conquering nature by obeying her, lighted up by a certain after-glow of the hopelessness already spoken of, which has caused so much of the energy of the medical profession to be thrown into the preventive service. Nor would it be well entirely to forget that it was in that branch of medicine whose professors wield the knife, and where the results of treatment can most easily be gauged, that the study of the minute living organisms which attack diseased or exposed tissues exercised the mightiest influence in curative treatment ; and that the names of Lister and of Koch have marked an epoch not alone in the surgery of wounds, but also in the general history of preventive medicine. While, therefore, the ancient physician was strong chiefly in his acquaintance with, and prophecy as to the probable results of, the processes he saw going on, the modern hygeist attempts to grapple with the remoter causes of those processes themselves, not in the individual alone, but also in the community.

When every rood of land supported its man many of the conditions we have nowadays to face and remedy may have had no existence. The air was fresh ; there were no mill chimneys, no foul sewers, no offensive cesspits to make it otherwise ; the water was pure : it came unsullied from high untrodden hills or well-

filtered from clear springs ; the food man ate was plentiful, and worked off by ample exercise ; while of business worries he had none. In this Arcadian simplicity possibly he lived ; myself I doubt it much. Man has ever been gregarious and ever unwilling to clear away materials for which he has no further use ; he has been ever ready rather to get rid of wastes by the natural drainage channels of the country ; and bacteria, though unnamed, had their existence all the same.

While, therefore, the country wight had on the whole an immense advantage over the denizen of the town, he was not free from ague on his undrained land ; he was subject from time to time to outbreaks of disease from polluted water supply ; nor was he free from poisons generated in the food he had taken means to preserve. Scorbutic complaints were common enough in country districts of England, where fresh food was the exception rather than the rule ; but it was after all in towns that the necessity for sanitation was first felt and earliest recognized. When big populations grew up round the graves of their ancestors and drank the water filtered through the subsoil of the church-yard ; when huge unventilated factories immured for long hours men, women, and little children, away from light and air ; when among the masses huddled together the germs of typhus fever or of small pox ran riot, men began to ask, "Were these things needful?" When cholera at length came to our shores and ravaged towns and villages a new era for preventive medicine dawned. Formerly it had been they that were sick, not they that were whole, that sought the physician. But when this Asiatic scourge swooped down upon our towns and villages, carrying away strong men in their strength, people began to repeat and emphasize the question, "Must these things be?" Much learned labor was spent in the study of the disease, but it was etiological inquiries, such as those of Dr. Snow, which pointed to the measures which would do so much, not only to prevent cholera itself, but which would lessen our liability to other and indigenous zymotic diseases. It soon came to be felt that there was a class of maladies, such as relapsing fever, typhus fever, and small-pox, which flourished best only in crowded neighborhoods ; and that there was another class, such as typhoid fever, especially apt to become prevalent where the water-supply was polluted. Nor was it long before it was also seen that such conditions as overcrowding and foul air, polluted drinking water and unwholesome food, were etiological

factors in the genesis of diseases other than zymotic, and that not only might undrained fens produce ague, but that damp houses favored rheumatisms and neuralgias, and generally deteriorated the health of their occupants and lessened their power of resistance to disease. It was noted that accumulations of spent matters about our houses were themselves a cause of illness, and that even where we freed these accumulations from certain of the fouler contaminating substances, conducting the latter by channelled passages direct from the house to the cesspool or the sewer, that these channels themselves became sources of danger. Nor was this danger greatly, if at all, lessened when the idea was suggested of placing traps in the course of these drains to intercept effluvia generated afar off in the sewer. These traps it was soon found were themselves effluvium-producers close at hand, and a system of relieving all pressure in our drains and disconnecting all house wastes from them, as well as of rapidly removing all solid accumulations, came to be regarded as essential to the well-being of a community. Then building by-laws and nuisance inspectors became essential, and every large town provided, either directly or by means of some company, for the supply of water of such purity as might be obtainable.

It had been long acknowledged that certain diseases were wont to spread from man to man, and more particularly from child to child. The ravages of scarlet fever, measles, and small-pox it was found were too little influenced by general sanitary improvements. The last, indeed, was perfectly controllable by means of vaccination. To this process, however, as the disease became less known and less feared, there grew up a not unnatural repugnance on the part of parents, who were unwilling to subject their children to the risk, however slight, of a possible blood-poisoning in order to protect them from a disease which their grandfathers had been wont to dread. Then arose the question whether by the separation of the sick from the healthy—at their homes where practicable and, where that was not so, in properly-equipped hospitals—something might not be done; and it came gradually to be recognized as a duty to the community that notice of the existence of these communicable diseases should be given to the sanitary authority.

It had been found advisable for health purposes that the country should be mapped out into districts, and these placed under the care of properly constituted authorities. These author-

ities were charged by law with the duty of examining their districts from time to time to seek for certain things which had come to be regarded as nuisances to be dealt with in a summary manner. This searching for nuisances was performed in some instances in a somewhat perfunctory manner; in a few it was probably not performed at all. While many authorities were anxious in every way they knew to promote the health of those under their care, there were those some of whose members regarded every suggested departure from the old order of things as a medical fad, and opposed to all projected improvements that stolid resistance which the reformer has ever had to fight. Such men, when a capable inspector reported on conditions now universally acknowledged to be unhealthy, would meet his suggestions with the question, "Has any one complained?" To such an extent did these obstructionists impede the working of the new sanitary machine it was their office to promote, that even more intelligent members of sanitary bodies came to regard the duty of the inspector as one simply of investigating complaints. With the small staff engaged by most authorities the inspector who did no more than this was still often sufficiently actively employed; but the Local Government Board have for many years continued annually to impress upon medical officers of health the desirability of a systematic investigation of some portions of their several districts. Meantime the growth of feeling in favor of the prevention of communicable diseases had induced the health authorities in many large towns to desire and obtain parliamentary sanction for a system of disease notification. In these towns it was soon felt that, important as the notification of the communicable diseases was in preventing their further spread, scarcely less important was the opportunity such notification afforded of making a complete examination into the sanitary condition of the dwellings where the cases had occurred. Hitherto it had been generally on complaint made that a dwelling was examined. The introduction of a Notification Act enabled the medical officers in such towns with a good grace to press for the examination of every house in which an infectious disease was known to have occurred. Where this was done, it was soon found that serious sanitary defects, entirely unknown to their occupants, had often existed in dwellings, and of which, consequently, had an infective disease not broken out, nothing would have been heard. These circumstances strengthened the hands of those who were

already pressing upon their authorities the desirability of systematically examining their districts. In one town of which I know something every house was examined in this systematic manner. Certain information as to the number of occupants, the number of rooms, and the means of ventilating them, the nature of the water-supply, the kind and efficiency of the drainage arrangements, and the sufficiency and situation of the sanitary conveniences, was collected, along with additional information as to any complaints made by the occupiers about nuisances in the dwelling or its immediate neighborhood. Without claiming that the whole or even the chief part of the improvement in the health of that town was due to such examination, I would, however, remark that the death-rate, which had averaged for the five years preceding this house-to-house examination 22.3, has averaged during the last five years only 18.6,—an improvement of more than 16 per cent. Had the authority insisted on the removal of all sanitary defects so discovered, the improvement would probably have been even greater.

Examinations thus made, sometimes in pursuance of a systematic plan, sometimes on account of the outbreak of disease in the near neighborhood, have again and again revealed the existence of dangers to health of the most appalling kind. To find, for instance, in a row of new houses, in one of which a case of diphtheria has appeared—houses built under modern by-laws and carefully inspected when built; houses with every waste cut off from the sewer, and all the sanitary conveniences outside the dwelling—that a strong-smelling chemical introduced into the sewer penetrated into the house itself in seven out of the ten was startling indeed. This indicates, of course, that there was a distinct connection between the air of the sewer and that of the house, and shows the importance of investigating these conditions even in houses as to the sanitary condition of which no complaint has ever been made. Such instances, I fear, are not uncommon. They go to show that even modern building by-laws, carefully carried out by able inspectors, will not necessarily guarantee a few years later the healthiness of a house.

But what about houses constructed where the by-laws were not modern? In all our large towns there are many houses with wastes not severed from the sewers. In a recent investigation on the outskirts of a large town of some 100 contiguous houses, all more or less recently built and of which nearly two-thirds had all

their wastes cut off and the remaining third not, it was found that the smell of a chemical entered the house through the drains in 19 per cent. of the former and in 60 per cent. of the latter. Such instances as these, which could doubtless be multiplied from every large town, seem to point strongly to the importance of a systematic examination of all houses, old and new, house by house, street by street, ward by ward.

It will, I know, be urged that people will object to the examination of houses where no complaint is made. On the contrary, experience shows that they welcome it. Even in the few cases where some hesitation is at first manifested, all opposition is got rid of when the object and importance of the visit are properly explained. Practically, therefore, this difficulty has no real existence. It must also be remembered that cottagers are sometimes terrorized by landlords or their agents, and dare not make any complaint, even of the most flagrant nuisance. Such landlords are fortunately not very common, but I have known notice to quit follow a suspected communication with the sanitary authority. Does it not seem a little absurd that necessary sanitary improvements should have to wait till our attention is directed to the house by the notification of some case of infectious disease or the registration of some death altogether preventable? If our sanitary service is to deserve its name, must we not everywhere investigate the conditions to be found and insist on the removal of those which are well known to be unwholesome before, and not after, they have led to disaster?

It is now universally admitted that the inhabitants of large towns must be provided with an adequate supply of pure water; that food offered for sale must be strictly and carefully inspected; that our ash-pits and our court-yards must be frequently and periodically cleansed; and that the healthy must be protected from contact with the infected. And yet in how many cases do workmen follow their employment in damp or confined workshops? How many persons live in unwholesome dwellings and we hear no word of complaint till some infectious disease breaks out or some one dies? Is it not, I repeat, rather our duty systematically to visit all houses, all workshops, and to ascertain beforehand whether the conditions there present are those which favor or destroy the health of those they are intended to shelter and protect?

Atlanta Garbage System; Collection and Final Disposition.

BY H. A. ANDREWS.

ALL the known methods of collecting and disposing of a city's waste, "dumping and burying," "transporting," "dump-in rivers and lakes," "reduction and extraction," "deodorization," and *cremation* are discussed and a list of questions appended for me to answer. Without considering any of the methods that depend on water and air to carry off or scatter the dangerous filth and threaten the life and health of some other community, I submit the following facts and statements relating to the *two widely differing systems of reduction and cremation*. The other processes are relics of the past and ignore the value placed on life and health in the nineteenth century.

I believe Atlanta has solved the problem of "collection." This new city of the "New South" has the safest, most economical and sanitary system of collecting all the garbage, combustible waste, night-soil, street sweepings, and ashes of any city in the United States. I have visited all of the large cities and inspected their various plans, but none of them have developed a system so free from politics, divorced from "jobs and rings," and so certain of operation without friction or delay all the time.

(1) The city collects all forms of waste and lets no contracts at all. This makes the citizen the "kicker" if a single street, alley, store, shop, or house is neglected for a single day, and the result is not a place can be found in Atlanta for any citizen to complain about. Every street and alley is clean all the time.

SANITARY TAX.

(2) The funds to carry out this work are supplied from a sanitary tax (house tax) of \$3.00 a year on each house. With this tax and other sanitary funds the city collects all the garbage, night-soil, combustible waste, street-sweepings, slops, swill, and every form of filth, and disposes of it in a sanitary manner, besides discharging all the other duties of sanitary inspector. The "house tax" is popular because the average citizen cannot have

his premises cared for in the same manner for several times that sum. The city is considering reducing the tax to \$2.00. The garbage from the business portion of the city is collected every day, and generally twice a day, especially in the wholesale and market districts. In the residence portions of the city where it is thickly settled collections are made every day; in other portions three or four times each week. The night-soil is taken up from the water-closets every week, and none of it is allowed to remain longer. It is emptied from the water-tight vessels directly into sealed barrels and driven immediately to the place of final disposition,—the crematory. The combustible waste at all times is allowed to be mixed with the house and store garbage and operates as a great absorbent, and finally as fuel to burn the more offensive filth. This plan is popular with the citizens, as it involves no sorting, no separation of garbage and trash, or combustible waste. The combustible waste and trash are as valuable to the city as cars of coal. The ashes which contain nearly all of the fertilizers of the material consumed are like other ashes and used by the farmers, gardeners, and fruit raisers. The advantage of this system is that the city is not tied up in long and short contracts to be fought for at every election.

AVOIDS LITIGATION AND DISPUTES.

(3) There can be no disputes or litigation as to the duties, rights, or obligations of contractors as now occur in New Orleans and other cities. The garbage collector cannot claim any excuse for neglect, because the city does it all. The Board of Health has charge of the work, and it is directed and managed by the Chief Sanitary Inspector, who has a "milk inspector," "plumbing inspector," "meat inspector," etc., as necessity requires. The city owns the carts, wagons, teams, and entire equipment, and operates them, paying the men weekly.

FINAL DISPOSITION.

Now as to "final disposition." All systems of reduction, the Samonian, the Mertz, and others lately devised, are open to very serious objection. All of them require a very large, costly, complicated, and extensive plant, any part of which is dependent on other parts, like the machinery of a watch or engine. If any part fail by accident, breakage, strike, or otherwise, the works are powerless to dispose of filth, and the danger of accumulation

rapidly increases. The offensive material is turned back upon the city, which has no other means of "final disposition."

LONG HAULS.

(4) Reduction necessitates hauling and shipping vast quantities of dangerous filth to one place, "the reduction plant," in fact, thousands of tons per week. It must travel long distances, over many residence and business streets, and often be handled on cars and boats to reach a point sufficiently distant from centres of population to be permitted at all. When once at the reduction plant it must be handled and "sorted" (generally by hand) in order to remove the substances that will not produce oil and are not suitable for fertilizers.

DISSEMINATE DISEASE.

What better plan could be devised by man to *disseminate disease*? If contagious and infectious diseases were prevailing in a city, as they often are, the "reduction plant," the "long hauls," through principal streets, the shipping, handling, and sorting furnish the *best possible means for scattering and spreading these diseases*. *It would be impossible to devise a better*. Who supposes men could be found to remain in their places at the risk of their lives and perform such labor when yellow fever, cholera, typhoid and scarlet fever, diphtheria, or small-pox prevails.

STRIKES.

On September 1, 1894, I was in New York and witnessed the "strike" of the barge men employed by the Barney Company to transport the garbage to sea. Boats were disabled, dumping apparatus thrown overboard, and 400 carts were standing loaded at the docks unable to unload, simply at the caprice of striking captains and mates. The "tie-up" threw thousands of loads of garbage upon the city which had no means to dispose of it. In this case the garbage was to be dumped at sea. But suppose it were to be landed at a reduction plant covering an area of several acres and costing millions of dollars, employing also hundreds of men who must handle and manipulate the filthy stuff by the thousands of tons. *Is it sensible to believe that such a system can be operated at all times and be depended upon to always care for a city in a sanitary way?* There is no means of exercising the

police power of a city to compel the employés of a company or corporation to work in time of danger. The greater the necessity the greater the danger of a break-down or strike, and no city will consult her best interests by depending on such a system. The few "reduction plants" now in operation are but just established, and none of them have yet encountered the danger that is sure to come.

LESS THAN 30 PER CENT.

That the best known reduction systems dispose of *less than 30 per cent. of the city's waste* is very important. Nothing but "garbage" is wanted, and strict ordinances must be passed defining just what the citizens must put in one receptacle and what in another. Night-soil, combustible waste, dead animals, ashes, and dirt are excluded and must be cared for otherwise by the city or the citizens. This is a great annoyance and burdensome expense to the citizen and causes many disputes and often litigation between citizens and contractors. As an economic and sanitary question for the whole city (and that is the only way to view it) *cremation* is far cheaper under the Atlanta system of collection. Crematories can be built at different points, north, south, east, and west *within the city's limits* and secure the advantages of "short hauls" and quick disposition of dangerous filth.

POLICE POWER.

The city can exercise her police power and compel the collection of garbage and waste. Nothing else remains but a trip to the nearest crematory and the work is done. Under no other known system can this be accomplished. A safe sanitary system can be maintained as a permanent feature of a city government and will manifest its economy each day, but a bad system will show its real cost in dirty streets and alleys, sickly homes, poisoned water, prevailing epidemics, depreciated property, discordant citizens, and a general reputation of "unhealthfulness." Good sanitation is above speculation in filth. If there is some fertilizing quality in the waste of a city, it is sufficient that we *save it in its ashes*, that can do no harm.

LOCALIZATION.

The question of "localizing" an epidemic of fever or diphtheria and preventing its spread is of vast importance. This can

safely be done by the Board of Health under a system of perfect cremation. Crematories being located in different districts of the city there is no occasion to haul infected garbage or filth through one district to another. It is easy to guard the other districts and streets, and so confine the disease to one place. This cannot be done where vast quantities of the dangerous materials must be aggregated in one place. In cities where night-soil is otherwise disposed of, cremation is especially adapted to destroying garbage, slops, etc., because the trash and combustible waste will absorb and burn the entire mass with little additional fuel. These are a few of the reasons which have led the Atlanta Board of Health to develop their system of "collection" and final disposition of garbage. With this system of cremation, Atlanta has no fear of contagion though all the world come to her doors.

The Ideal City from a Medical Stand-Point.¹

BY W. T. BURRESS, M.D.



FROM the earliest ages, according to the records of geology, human beings have congregated in greater or lesser numbers, and as civilization has advanced, so have great cities been evolved from a mere aggregation of tents, or a group of leafy huts, until the modern municipality is a seething mass of humanity and a complicated net-work of mechanical devices. There is nothing more interesting to the average man than suggestions regarding the future state of affairs, and as a sanitarian I shall speak of some of the probable improvements that will be made in the near future in almost all large cities of the civilized world. . . . Man showed the same general traits that other animals possessed, gathering in numbers for mutual protection and companionship tens of thousands of years ago. We find human bones and implements in surroundings which indicate their existence during the pre-historic palæolithic and neolithic periods, and as we follow the devious pathway of his existence down through the mystic ages

¹ From the Pacific Medical Journal.

of the past, we arrive at a period of authentic history. We know of the high state of civilization that existed in ancient Egypt, Assyria, and later in Greece, and read of the founding of the great city of Babylon in the twenty-second century before Christ, soon followed by Thebes, beautiful Nineveh, and others whose ruins are still visible to sight-seers. Since then the progress of civilization and the evolution of centres of population are matters of unquestionable record, but the facts regarding sanitary science are very meagre up to the last few hundred years, so that sanitation may be regarded as a modern science, the outcome of a necessity. As a natural sequence of the change from a limited and primitive settlement, where nature had sufficient power to overcome the deleterious results of the life of man, by pure air, water, and abundant soil, to the great cities of to-day, there have arisen most serious questions as to the best methods of overcoming the dangers arising from the waste products of living. If there were no cities, there would be no sanitary science necessary to aid in the maintenance of ordinary health, but the conditions, as they are, necessitate boards of health and health officers to labor for the suppression of epidemic and endemic diseases, and you know that means the expenditure of immense sums of money annually. It is only necessary to look over the records of mortality in the great cities of the world to see the decided changes brought about by the enforcement of sanitary measures, the most important being the disposal of sewage and other refuse to protect the city from self-infection, and quarantine to protect it from dangers from outside sources. The ideal city is a thing of the indefinite future, but it is by no means an impossible creation, but it is doubtful if any towns of to-day will grow into municipal perfection, for, like individual men, they are more or less dependent on circumstances. A town is not usually founded by an individual, but it is the result of a natural growth, as the resources of its surrounding country become known and used. Cities are no longer formed under the same circumstances that they were during the infant stage of the human race, when mutual protection was the guiding instinct. Now the location of a town depends on natural agricultural or commercial advantages, and it is only after the population increases to a considerable extent that the health and well-being of the people need supervision. . . .

The direction of the streets is determined by rail or other roads, or water-front position. The future city will have streets

of a nature to produce as little noise as is consistent with traffic, by bituminous or other smooth pavement, and only a few cobblestones will be preserved in this academy, perhaps, as relics of a barbarous age. Economy in conveyances will be as marked as the salutary effect on the nervous system of the city inhabitant. Good thoroughfares will be the result of a demand from cyclists and other travellers; indeed, there is no class of people to-day who have brought about a greater improvement in roads than have the wheelmen. The overhead trolley system of electric cars will be relegated to the past within twenty years, and their place supplied by underground conduits and compressed-air motors. Horses will be abandoned in cities and used only in frontier territory, and in their stead the monocyde, bicycle, and electric conveyances will be utilized, bringing about more rapid and economical transportation, with less noise and more safety to the traveller. If any one regrets the inevitable fate of the horse, let him go into the commercial streets or almost any place in a great city, and see the labor that they undergo, and the abject slavery that they represent, and he will then welcome mechanical power, if only to please his humane sentiment. . . .

Sewage disposal is perhaps the most serious problem that confronts the modern sanitarian. The mere carrying off of waste products to a dumping-ground, or emptying of the same into river or lake will be followed sooner or later by pestilence and death. Owing to the unfavorable location of some cities, the carrying off of *débris* necessitates the solution of great engineering problems. The portable garbage-engine, pumping-stations, chemical precipitation establishments, sewage farms, etc., are all the results of necessity, and answer their purpose with partial success. Eventually the disposal of sewage will resolve itself into those methods which can be operated at a profit, the most promising being sewage farming, and all waste products which cannot be used for agricultural or commercial purposes will be destroyed by fire. The disposal of the dead will resolve itself into a universal method of cremation, which alone is worthy of modern civilization. The contamination of air, water, and soil by cemeteries located within the limits of a city will no more be tolerated one hundred years hence than would a pest-house to-day. It is dust to dust sooner or later, and it remains for us to assist nature in bringing about the dissolution of man's body in a clean, rapid, and sanitary way, and by so doing we trample on no rational religion, nor crush the tender sentiments of bereaved relatives and friends. . . .

Consumption: Its Restriction and Prevention.¹

THE disease commonly known as consumption is the softening period of tubercle of the lungs. Tuberculosis may affect not only the lungs, but the glands of the neck, the kidneys, the spleen, the intestinal glands, the large joints, the membranes of the brain, and other organs of the body; but it is with tuberculosis of the lungs, which is known as consumption, that this paper is intended to treat.

About one-seventh of all the deaths in the United States are due to tuberculosis in some form, by far the greater number being from tubercle of the lungs, known as consumption.

CAUSE OF CONSUMPTION.

Tuberculosis is produced by the entrance into the body of the germ of the disease, known as the bacillus tuberculosis. This may reach the system in dust-like particle of consumption sputa, or it may enter the system on particles of food, possibly in water and milk. The most common method is the inhalation of dust-like particles of the spittle of persons who suffer from consumption of the lungs.

A person occupying a room, and being careless with the expectoration, spitting on the floor or on the sides of the walls of the room, is a fruitful source of danger. The sputum becomes dry and friable, and separates into dust-like particles, like motes in the air, conveying germs (which by drying have not lost their life) into the lungs of those who live in the same house.

PREDISPOSITION OF PERSONS TO CONSUMPTION.

Many people think that consumption is inherited, but the closest investigation has shown that it is not inherited, and that only the susceptibility or liability to the disease is inherited. Thus the children of a tubercular family do not necessarily inherit the disease itself, but they inherit the constitution, which, when exposed to the germ, furnishes a soil which propagates the disease with great rapidity, and one after the other succumbs.

¹ Issued by the State Board of Health of California.

Again, one member of the family, the father, for instance, may suffer from a slow form of consumption, due to an involvement, perhaps, of but a small portion of the lungs. By careless expectoration he may infect his children, who, being susceptible, will die one after the other, while the father, the cause of all, continues to live.

A not infrequent manner of the germ of consumption reaching the system is through the milk of tubercular cows. The milk from a cow that coughs or appears mangy and will not fatten should always be viewed with suspicion. It is better to scald all the milk used in the family. It is safer always to use milk from healthy-looking cows only, and families should refuse to purchase milk from dairies that do not keep their animals in a clean, healthy condition.

The use of tuberculous milk, whether from tuberculous cows or from nursing a consumptive mother, is most dangerous when the child has small ulcers, commonly called canker sores, in the mouth and during the teething period. At such times the bacillus may enter the lining of the mouth and penetrate to the glands under the jaw and of the neck, resulting in swollen and suppurating glands, which gradually extend and break through the tissues, and are commonly called scrofulous ulcers of the neck, leaving unsightly scars that last during life. These glands in the neck are connected by small vessels, and one after the other break down and suppurate. They extend down towards the apex of the lungs, and in that way reach the pulmonary tissue and result in infecting the lungs with the germs of consumption.

The breath of a consumptive person is not necessarily dangerous, as the germ is conveyed largely through the expectorated matter, which swarms with bacilli. Still, the expulsive effort to cough may act as an atomizer, and for a moment throw germs into the air; but these being moist, attach themselves to whatever they come in contact with, and are not liable to be dangerous to others until they become detached as dried particles and capable of floating in the air.

SELF-INFECTION.

A person swallowing the germs of tuberculosis is liable to self-infection,—in other words, to add to his disease by swallowing his sputum. He may suffer from consumption of the lungs, from which it is not impossible for him to recover; but by carelessly

breathing the germs which he has expectorated, he may infect portions of his lungs that are still sound, or he may, by swallowing the germs, cause tuberculosis of the bowels, intestinal glands, or other abdominal viscera.

CONTAGION AND INFECTION.

When we speak of consumption as being contagious or infectious, we do not mean it in the same sense as small-pox, scarlatina, or measles, for it is possible to live alongside and with a consumptive person without acquiring the disease, if the proper precaution be taken to dispose of the sputa. Nevertheless, we know that frequently persons suffering from this disease are very careless with their expectoration. This makes the habitations of such persons dangerous to others, and in the restriction and prevention of the spread of consumption we must render the sputum innocuous, by depriving the germs of life.

PREVENTION OF CONSUMPTION.

In order to prevent infection from consumption, discharges from tuberculous patients should be destroyed before they become dry. All sputa should be expectorated on pieces of cloth and burned, or into cups containing a 5 per-cent. solution of carbolic acid. If the expectoration is into a handkerchief or napkin, the article should be placed in boiling water for fifteen minutes before it can be considered safe to use again.

All receptacles used in receiving expectoration should be rinsed in boiling water. It is better to expectorate upon pieces of old cotton or linen cloth and burn them.

Cups of waxed or oiled paper should be invented, to be carried in nests, and sold at a moderate price, so that they may be burned after use. These might contain prepared cotton to absorb the secretion and kill the germs. Such receptacles should be used in travelling by rail or steamboat.

Unless more care is taken on the part of persons having consumption, it will be found necessary to place legal restriction upon their migrations from one place to another. The promiscuous expectoration, by such persons, on the floor of cars, between the seats, on hotel floors, on sidewalks, and in public places generally, renders them not only a nuisance, on account of the unclean habit, but a nuisance that is dangerous to the public health, as

liable to infect others. The expectoration is none the less filthy and dangerous because it is an inexorable accompaniment of a hopeless disease.

HYGIENE OF THE ROOM WHERE CONSUMPTIVES SLEEP.

Carpets, in houses occupied by consumptive patients, are almost certain to become lodging-places for tubercular bacilli. It is better to place on the floor rugs which are not fastened down, so that they may be frequently taken out of doors and exposed to the sun and air. Neither the floor nor the rugs should be swept when dry. Dust on the furniture should be removed by wiping with a damp cloth, and the cloth should be burned at once or thoroughly boiled before drying.

Body and bed linen should always be boiled in the process of washing. The room of the patient should be large and sunny, and the surface of the walls smooth, so that dust will not become attached. The curtains should be of some fabric which can be washed in boiling water. The floor should be waxed or covered with oil-cloth or linoleum, and, as stated before, better to have mats that can be taken out of doors than to have carpets.

Well persons should not sleep in a room recently occupied by a consumptive; in fact, they should not occupy such a room at all until it is disinfected by washing the side-walls, doors, and all wood-work, including furniture, with soap and water, and then with a solution of one to a thousand of corrosive sublimate; even dishes, knives, forks, and spoons used by consumptives should be scalded before being used.

In some cities the local Board of Health undertakes to disinfect, free of charge, rooms which have been occupied by consumptive patients, when requested to do so.

PRECAUTIONS TO BE TAKEN BY THOSE WHO ARE PREDISPOSED TO CONSUMPTION.

(1) Do not live in a damp locality, in a damp house, nor in a house with damp or foul cellar or surroundings.

(2) Do not live in a house with defective plumbing or bad drainage.

(3) Do not frequent crowded or badly-ventilated assembly-rooms, nor sleep in close apartments.

(4) Adopt an out-of-doors occupation, so as to live in the open air.

(5) Avoid as much as possible everything that tends to depress; all excesses should be avoided; and keep free from anxiety and mental and physical overwork.

These causes, by placing the system below par, render the persons less capable of resisting the disease (if exposed to the germs), in such a way as to bring about the development of consumption.

HOSPITAL-ROOMS IN BOARDING-HOUSES AND HOTELS.

Boarding-houses, hotels, and sanatoria in salubrious regions where consumptives are accustomed to gather for the benefit of locality and pure air, should be provided with rooms especially set apart for the use of consumptive patients. These rooms should possess all the necessary equipments of a hospital; they should not only be well ventilated with light, sun, and air, but the wood-work should be such as to be readily cleansed. There should be a total absence of hangings and draperies; the walls, if papered, should be with glazed paper and varnished, so as to be washed. The floor should be filled with wax or paraffine, and the bedstead metallic. The conveniences of bath and closets should be modern. Scrupulous cleanliness should be observed.

Such rooms would be no more expensive than ordinarily furnished rooms, and would render the presence of consumptive persons free from danger to those who are in health.

All boarding-houses and hotels, as well as residences of the rich and well-to-do, should be provided with hospital rooms, so that if scarlatina, measles, diphtheria, or such like infectious diseases should break out in the house, it would not be necessary to remove the patient and separate families, to say nothing of the danger to such patient from enforced removal, and to others by exposure to the disease during the process of removal.

RECAPITULATION IN BRIEF.

Consumption is caused by a germ called the bacillus tuberculosis.

Consumption of the lungs is the softening process of a deposit of tubercles in the lungs.

Consumption is no longer believed to be hereditary, but it is believed that a tendency to acquire the disease is hereditary.

Breathing the germs or swallowing them in food or milk is the most common method of acquiring consumption.

The spittle of a consumptive is full of germs. When the spittle is dry they float in the air as little particles of dust, and, lodging in the respiratory passages, may take root, multiply, produce tuberculosis, finally, consumption and death.

Do not use milk without boiling.

Do not use milk from cows that will not fatten.

Do not purchase milk from dairies that do not keep their animals in a clean, healthy condition.

Do not permit a consumptive to expectorate on the floor. Insist that cloths which may be burned shall be used to receive the expectoration.

Let all utensils which a consumptive may use for any purpose be scalded after use.

The health officer should invariably be notified of the presence of a consumptive in the house.

It would be better if the sputum of all suspected cases were subjected to a microscopic examination, to determine the presence or absence of the germ of consumption. If the germ is present, it is consumption; if the germ is not present, it is not consumption, but some other affection of the lungs, perhaps less dangerous.

Rooms recently occupied by a consumptive should be thoroughly disinfected before occupation by well persons. They should not only be disinfected, but should be thoroughly washed.

Floors of rooms occupied by consumptives should not be swept when dry.

Hotels, lodging-houses, and sanatoria generally, should be provided with hospital-rooms for the use of persons afflicted with consumption, or with acute contagious diseases.

The residences of wealthy people should always be supplied with rooms fully equipped to serve as hospital rooms.

Persons inheriting the liability to consumption should choose an out-of-doors occupation; should avoid excess of all kinds; avoid damp habitations, over-exertion, and all depressing causes, mental and physical. They should, above all things, avoid the presence and habitations of persons afflicted with consumption.

Consumptives should, with all kindliness, be remonstrated with by relations and friends, and gently though firmly admonished concerning their expectoration. They should be given to understand that public opinion will soon bring about a restriction of their liberty, unless they, themselves, voluntarily and intelligently exercise more care in disposing of their expectoration.

The danger is from the spittle of consumptive patients, from the milk of tuberculous cows, and from the flesh of tuberculous animals. We may guard against the tuberculous flesh and milk with comparative ease, but we cannot so easily escape from the minute atoms that float in the sunlight, and which carry the germs into our lungs, in the air we breathe.

The only way to restrict and prevent consumption is to destroy at once and forever the sputum of the sick; and kill all the tuberculous cattle or other animals. A tuberculous animal may cough on the grass, hay, or feed to be used by other animals, thus infecting a large percentage of a herd.

MEDICAL TREATMENT.

The medical treatment of patients afflicted with consumption should be left entirely to the attending physician. It is not in the province of preventive disease circulars to indicate the medical treatment of the sick. These rules are for the guidance and instruction of the people who have to care for the afflicted.

CONCLUSION.

In conclusion, the State Board of Health would earnestly urge that whenever a patient has reached the second or third stage of consumption, indicated by a daily rise of fever, with night-sweats, copious expectoration of purulent matter, with perhaps swelling of the ankles, and diarrhoea, that it is not only folly, but criminal to send him away for the benefit of climate. Let such patient have the comforts of home, if there be such comforts for the patient. Let him remain where he cannot spread the disease; and when he has passed away, let him be buried with little delay, or, what would be far better, the body should be cremated, thus rendering it incapable of doing further injury.

The habit of travel that consumptive people have tends more than all else to spread the disease, by making it possible to acquire it through an increased number of foci or points where it exists.

When the disease has reached the stage above described, the patient will surely die, and death is then a consummation devoutly to be wished, even by the patient; therefore, kindly and in all gentleness let him realize his condition, but firmly and unyieldingly insist that he shall not endanger those whom he loves best,

by careless expectoration. Let him be instructed in this regard by his attending physician, by his friends, by his neighbors, and by the health officer, if necessary, until his co-operation and the co-operation of those who care for him are secured beyond a question.

Until public opinion demands legal restriction of persons affected with consumption, the instruction and education of the public as to its infectious nature, and how to restrict it, are all that can be done.

Ideals of Sanitary Reform.



VALUABLE article is contributed to *Longman's* by Sir Benjamin Ward Richardson on "Past and Ideal Sanitation." It opens with a rapid survey of the extraordinary advance of sanitary science and its application during the lifetime of the writer. Emboldened by these successes, he outlines a series of improvements in the appliances for the prevention and cure of disease, which, though they have special reference to English cities, may point us a lesson.

A NATIONAL SYSTEM OF SEWAGE.

Sir Benjamin is sadly dissatisfied with the present unconnected local arrangements for the disposal of sewage in English towns. He insists on the need of a plan of "national main drainage," and to this end would utilize the railways!

"We have nothing to do but to construct along the sides of all our lines of railways a series of tunnels in iron tubing or brickwork as may locally be most appropriate or convenient; to let this main conduit or sewer start near to the commencement of every place where there are houses that require to be drained, and lie by the side of the line; and to let the sewage from the houses be pumped into the main course and carried off, so as to be collected at distant points or conveyed by side conduits to spots selected for its utilization, that the land all over the country may receive the benefit of it for fertilization, away altogether from the residences of men, and in a manner perfectly harmless to the health of communities. For such ready transit the levels are all

laid, and there is such ample, open, and unused space for the mains, it would be no more difficult to lay them down than it has been to lay out our telegraph lines.

"Another plan would immediately follow,—that, namely, of utilizing the railway levels for supplies of water at any distance from towns, so that our great lakes could be used as sources of water-supply to towns all along a line. . . . Thus there would be a kind of arterial and venous system in every place."

Rubbish should be disposed of by burning everything that fire can consume.

"HOTEL HOSPITALS,"—A VISION OF THE FUTURE.

An inviting picture is given of coming arrangements for nursing the sick. For the sick in every class the hospital is to be preferred to the home. But the hospital need not, as at present, consist of huge barracks: "My ideal is that in all communities there should be, according to the numbers statistically required, hotel hospitals, comfortably, and for the richer class, even elegantly furnished and fitted with everything that is necessary for the sick in any form of disease. These hotel hospitals should be conveniently planted for the service of every one, so that if a person is ill he shall be able to find a room in one of them where he can be looked after by his own medical adviser and friends." No private house would then become a centre of infection or scene of death; and the reform could be carried out at less than the cost of the present inferior management of the sick in their own homes.

For contagious diseases the writer has modelled a special system of hospital, which he hopes shortly to see realized: "Instead of taking such cases into the upper rooms of private houses, I would have light, elegant small hospitals, placed at proper distances on the tops of special houses, with proper lifts for taking the sick into them; with every facility for free ventilation through them; and, besides, gas fire shafts for drawing up and purifying the air from the sick-rooms."

HOW TO VENTILATE CITIES.

To plan the streets so as to let the wind get along them, and to line them as far as may be with vegetation, are the two secrets of urban ventilation. The usual course of the winds must be considered in laying out new streets: "In England the current

is, I believe, for a great part of the year in one direction,—namely, from the southwest to the northeast,—so, when we look at our trees, borne down by the winds, we see them bent northeasterly,—that is to say, opposite to the most common current; or, if we observe the vane on a church held in a fixed position from rust, we see that it usually points southwesterly.

“In places which are situated low, and in valleys, it would always be of advantage to bring in the air from neighboring heights, and now that we have the admirable mechanical principle of pumping in air from any height, and of compressing it in reservoirs, there ought not to be a town or village which, however unfortunately situated, should not be thoroughly ventilated by mechanism in addition to natural pressure. . . . The air might come to you and into your parlors from cloudland.” The Eiffel Tower might, according to Sir Edwin Chadwick, be thus utilized. Ventilating towers might be built quite as easily as tall chimneys.

THE “UPPER LONDON” THAT IS TO BE.

“Upper London” is no celestial counterpart of the terrestrial metropolis; it is a vision of urban ventilation artistically secured: “This would consist in doing away with the chimneys of existing houses, and in making beautiful terraces which should run along the tops of the houses and be united across the streets by arches, from which could be suspended electric lights, intersecting all parts of the city or town. These terraces would form pathways for foot passengers; for men engaged in the distribution of letters; for men engaged in the extinction of fires, should they break out; and for bearing the erection of furnaces, at proper distances, into which all the smoke emanating from the houses could pass for complete combustion and clearance of the air. Along such terraces I should suggest that flowering plants should be placed so that the upper part of the town should, in fact, be a garden of beauty, with all that is requisite to render life more cheerful and open both above and below. That this great reform will come I have no kind of doubt.”

COOK AND BUTCHER REPLACED BY CHEMIST.

Diet, too, will be transformed. For drink, nothing is needed but pure water. As to food: “The conclusion I have been brought to is practically that men can live most healthily on a very light animal diet in combination with fresh fruits and green

vegetables, and can learn to look on the cereals—grains and pulses—in the same way as if they were animal substances.” Repugnance to animal flesh as food “increases with every step of civilization.” And why use the laboratory of the living animal to prepare vegetable food for us when we have chemical laboratories? “There will, in time, be found no difficulty in so modifying food taken from its prime source as to make it applicable to every necessity, without, I repeat, the assistance of any intermediate animal. In the presence of such a development, foods of the best kind will become the cheapest of all products.”

Sir Benjamin, in conclusion, notes with satisfaction the changed attitude of the English clergy. If they will only remember that sanitation is part of the religion of the Old Testament, and “if they become as teachers bold representatives of natural sanitation, they will soon rank among the first sanitarians of the world,” and prepare in home and school for the general adoption of true sanitary ideals.—*Review of Reviews*.

How We Go to Sleep.

Now physicians and physiologists come to the front with the astounding statement that a man goes to sleep piecemeal instead of altogether and simultaneously, as it were. That is, the senses do not lull themselves unitedly and at once into a state of slumber, but cease to receive impressions gradually, one after the other. At first the sight ceases, and next the sense of taste loses its susceptibility to outward impression.

Even then, the individual being almost in a state of unconsciousness, three senses still remain in a condition of activity,—smelling, hearing, and thought. Gradually the sense of smelling goes, then hearing, and, finally, with the lapse of thought, the entire body becomes completely asleep.

The physiologists have gone even further than this, and they say that the senses sleep with different degrees of profoundness. The sense of touch is the most easy to arouse, next that of hearing, then sight and taste and smelling last.

Sleep steals on the body gradually, certain parts of muscles beginning to sleep before others. Slumber commences at the extremities, beginning with the feet and legs. That is why it is always necessary to keep the feet warm.—*New York World*.

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Will versus Impulse.

(CONTINUED FROM SEPTEMBER ISSUE.)

IN these cases, in the instances of so-called "cranks" or hypochondriacs, the true condition is not recognized. That they do magnify and exaggerate the significance of their symptoms there can be no doubt, but that there is no foundation at all for their constant complaints we emphatically deny.

We hold that mentality is very much of a *material* product, if not in itself a visible, tangible, ponderable material, yet it is the result of material agencies, and is, therefore, if not itself material, at least very closely allied to the material. Therefore, if all mental acts or processes are originated or elaborated as the result of the working of material organs, it is evident that their quality will depend in a great measure upon the integrity of the organs elaborating them. The brain is the organ of mentality; therein are received all impressions from without, and therein do these impressions originate their sequent acts of mentality. Of all brain functions reason and will are the most complex and call for the most perfect state or condition of this organ.

To our way of thinking, the brain is always in a condition suited to the reception of impressions, and these impressions always excite a sequent action, be it of a voluntary or of a purely reflex nature. Immediately upon the receipt of an impression

that is calculated to originate a voluntary motion an impulse towards motion is thereby generated ; if this suggested motion be performed, it is in reality a motion of impulse ; while apparently voluntary, it is yet, in truth, reflex to a great extent ; if, however, the suggested motion be reasoned upon and modified or changed in accordance with this reasoning, then does it become a motion of reason, then is it the highest product of a healthy brain. To make this idea clear, an impulsive act, an act suggested by some external impression, can originate from any brain ; a reasoning act, an impulse controlled and regulated by reason, can originate only in a brain that is capable of reasoning. But are not all brains capable of reasoning ? by no means, while many brains capable of reasoning are not capable of logical reasoning ; hence the true significance of a suggestion or of an impression is not recognized ; it is magnified or contorted or totally misunderstood. Now, impressions give rise to thought, which is an act of mentality, and if the brain be not in a healthy, normal condition, the thought sequent to the impression will not be a healthy, normal thought. To make the practical application of this idea : the individual whose nervous system has lost its balance, in whom the breaking-down process predominates over that of building up, such individual has lost a part of his will or reasoning capacity, so far as his own personality is concerned. In his business and social relations with others he may be as strong-willed as ever, but in his relations with himself he is not. Will-power, or reasoning power, is, as we have said, the highest attribute of mentality, and because of this very fact is the first to suffer from a deteriorated condition of the organ that produces it.

Reason is a product of the brain ; logical reasoning emanates from a healthy brain ; faulty reasoning from a brain that is not healthy ; there it is in a nutshell.

The brain is but a part of the nervous system, and if the whole nervous system has lost its balance, the brain included, it is but logical to infer that the reasoning power of such a brain will be impaired. Now in these cases wherein the molecular balance (so to speak) of the nervous system is lost, where the process of molecular disintegration exceeds the process of molecular reintegration, in these cases, because this defective nervous system cannot generate nervous force or "*vital steam*," in quality and quantity that is necessary, none of the vital functions are up to par ;

none of the organs can do the full amount of work that is demanded of them by the standard of healthy humanity. Remember that, as yet, these organs in themselves are healthy and capable of their full *quota* of work, but they lag because they do not receive an adequate supply of "*steam*." Remember, also, that the nervous system is not yet diseased, the balance only is lost; there is not yet any real disease anywhere, but there is an abnormal condition that must eventuate in organic disease if allowed to continue unchecked.

While there is no real disease anywhere, there is yet a condition of depraved vitality that is very unpleasant to the intelligence of the individual, but that is not estimated at its true significance, because the reasoning powers of such individual are not such as to allow him to logically reflect upon the meaning of impressions.

Such a person has a pain in the back, and to his abnormal intelligence this pain means "*Bright's disease*," when it may be due to any number of trivial causes; a pain in the stomach, and it means to him "*cancer*," when to the normal mind it would mean but a little temporary indigestion, or, possibly, an effort of nature to evacuate torpid bowels.

The possessor of a perfectly healthy organism is absolutely unaware of his existence, further than the constant presence of a sense of pleasure; none of his functions are evident to him; but a sense of delight, contentment, satisfaction with himself and others is always in evidence. Sensations referable to any part of the body always mean disorder of such part, not necessarily *disease*, but surely *disorder*. Therefore, in the so-called "*crank*," who is always complaining, we have in the beginning a disordered nervous system consisting of a loss of balance; consequent upon this we have disorder of the various organs, these organs complaining to the brain, and the brain not capable of logically estimating the significance of these complaints. This we have primarily, while, if allowed to proceed unchecked, we have ultimately organic disease, or vitality lowered to such a degree that it is unequal to any sudden demand, and sudden death follows any unusual strain, either physical or mental.

Hence we see how faulty, how unkind, how uncharitable, how fatally dangerous it may be to disregard the complaints of so-called "*cranks*." To our way of thinking these people are "*martyrs to duty*;" their ill-feelings are real; their real feelings

are magnified until life is agony, yet they receive but little sympathy, as they go about their daily duties, physically unequal to them, yet dutifully determined to hold out to the end, confident that they are the victims of some dread and fatal disease, yet daily doing their part in the economy of nature.

And particularly sad to us are these cases when we realize how illy they are understood and how very amenable to cure they are when rightly comprehended. Drugs are requisite, of course, to supply this waste of nervous tissue; here is an absolute condition that must be met by material agencies, but drugs alone will do but little, and this little will be but temporary. The mental condition referred to must be recognized and combated, and here comes in the mighty influence of *personality* in the treatment of nervous disorders. The transmitted influence of a *real* cancer or of the knowledge of the existence of any *real* organic disease, through the agency of the mind upon the body at large, is recognized as most potent and most harmful, so much so that death frequently follows the revelation of the existence of an organic disease much sooner than would be the case, were it not for this influence through the mind upon the body at large.

This is well recognized, but it is not so well known that the influence of an *imaginary* organic disease is nearly as potent at least in its power of preventing a restoration to health. To the person whose reasoning powers are not efficient, the *suggested* disease (suggested by some symptom) becomes a *real* disease, and as such exerts all of the baneful influence of the *real* disease upon the body at large. Drugs calculated to restore the balance of the nervous system cannot do so if they are continually antagonized by the abnormal reasoning faculties of the patient, who is constantly nullifying their beneficent influence by assuring himself that he has some serious organic disease.

Hence, in the management of such cases, it is of the utmost importance that the derailed reasoning powers of the patient shall be turned into the proper track, and this cannot be accomplished with drugs; here it is that the personal influence of the physician comes into play, and it is because of the possession of this personal influence and the recognition of its value that some physicians are more successful than others in the treatment of nervous disorders. We all know what drugs to use, but we are not all alive to the great value of personal influence; we do not all possess the requisites, nor do we all know how to utilize it to the best advantage.

(TO BE CONTINUED.)

Defender—Valkyrie.

THE recent international yacht race resulting in a victory for the American boat suggests the proposition that we should have an international conference on the "art of living," in which we predict that England will carry off all the honors.

Whenever any other nation competes with us in any contest that calls for something to be done in a hurry, whether it be the sailing of a yacht, the acquisition of wealth, the loss of health, or the act of death, the other nation, so to speak, "is not in it;" for doing things in a hurry we are unrivalled and unapproachable. We live fast, we sail fast, we get rich fast, we get sick fast, and we *die fast*, but mighty few of us derive any real pleasure from life.

The one thing that we know very little about is the art of living. "*What fools we mortals be,*" says *Puck*, and how wisely and correctly does *Puck* estimate our national characteristics. Are we not the dumbest kind of fools to hurry and worry and labor and fuss and fret and fume for the acquisition of that the possibilities of the enjoyment of which we are constantly denying to ourselves. The Englishman works only that he may live and enjoy life; the American lives only that he may work. The former does only the work necessary to provide him with the pleasures of life; the latter sees in life only capacity for work. If Lord Dunraven will contest with the magnates of New York on the possession of the secrets of the "art of living," we can assure him an unquestioned and most brilliant victory.

Keeping Warm.

NOW that the cool days of autumn are at hand let us remind our readers of a simple little expedient for keeping warm that will prove much more healthful than hugging the kitchen fire or crowding one's self with heavy wraps.

One of the many beautiful functions of the human body is that of heat-production, and so efficiently does it work that in a healthy person the temperature of the body is always maintained at the same level ($98\frac{2}{3}^{\circ}$ F.), no matter how hot or how cold may be the surrounding atmosphere. With an outside temperature of 100° F., not only is but little heat made within the body, but act-

ually $1\frac{3}{5}^{\circ}$ F. of bodily heat are radiated into the atmosphere, while, when the temperature of the atmosphere is down to 32° F., no less than $66\frac{2}{5}^{\circ}$ F. of heat are manufactured and retained within the body. This bodily furnace works automatically with beautiful accuracy, producing and radiating the amount of heat necessary to reduce or elevate the bodily temperature to $98\frac{2}{5}^{\circ}$ F. Nature abhors extremes and loves the happy medium, and as the atmospheric temperature is lowered, as less heat is derived from the sun, she casts about her for some other way to warm up the atmosphere, and one of her devices is to abstract heat from the animal bodies that are continually making it. So, then, when the atmospheric temperature falls 10° F., several degrees of heat are abstracted from the body of each of us, yet our temperature still remains at $98\frac{2}{5}$, because the automatic heat function responds to the call and produces more heat. But it must be self-evident that if we expect this function to work we must supply to it the necessities of its work; and what are they? in the stove carbon and oxygen, so, also, in the human body carbon and oxygen are the elements of heat. When your room is warm you shut off the draught from your stove,—that is to say, you shut off the access of oxygen to the carbon in the stove; when it is cold you increase the draught, and if you want all the heat that you can get you fill the stove with carbon or coal and open the lower door so that the oxygen of the atmosphere can be drawn up through and combine with the carbon. This is just what you want to do with the body when you are cold. You want to increase the store of carbon or coal which results from the use of tissue, hence you want to exercise, you want a good, brisk walk, then you want to increase the supply of oxygen that is to combine with this coal, and this you will do by deep breathing, by filling your lungs to their utmost capacity. Laziness in warm and activity in cold weather are the conditions essential for the integrity of the heat-producing function. Of course, in extremely cold weather the bodily function must be supplemented by the iron stove; but it is a dangerous and unhealthful practice to resort to artificial heat upon the first advent of *cool* weather.

Develop and keep developed a vigorous, internal, heat-producing function and you will develop an insusceptibility to the influences of external cold that will surprise you.



The Healthiest Place in the World.

The healthiest spot in the world appears to be a little hamlet in France, named Aumone. There are only forty inhabitants, twenty-three of whom are 80 years of age and one is over 100.

Fatal Dry Rot.

Chief-Justice Fuller, of the United States Supreme Court, said, the other day in the course of an interview, "If we want to live to a green old age, we should stay in harness. The dry rot of aimlessness eats out existence."

Safety in Thunder-Storms.

According to a recent lecture of Professor Schuster, of London, the safest course for a human being in a thunder-storm is to get thoroughly wet. Benjamin Franklin remarked that he could kill a rat when dry by means of an electric discharge, but never when it was wet.

Rest for Physicians.

The physician needs more mental diversion. He needs more active exercise, and more sleep, too,—fully seven hours; and as his sleep is often broken in upon at night, he should form the habit of sleeping at odd moments, even by day. The folly of incessant work is illustrated by the case of the brilliant Dr. Golding Bird, of London, who, a few moments before his death, remarked to a medical friend, when his own great popularity was mentioned, "You see me, at a little over 40, in full practice, making my several thousand pounds per annum. But I am to-day a wreck. I have a fatal disease of the heart, result of anxiety and hard work. I cannot live many months, and my parting advice to you is this: never mind at what loss, take your annual six weeks' holiday. It may delay your success, but it will insure its development. Otherwise you may find yourself at my age a prosperous practitioner, but a dying old man."—*Medical Summary*.

Consoling.

Patient.—I am in awful agony, doctor. It don't seem possible that I could endure worse pain.

Doctor.—Oh, you'll alter your mind after you have taken the dose I have prescribed for you.

To a Scientist.

Microbes in the kiss, you say !
 Right you are, my boy ;
 Little germs of purest bliss,
 Bacilli of joy !

How to Cure Corns.

Linseed oil is a sure remedy for both hard and soft corns. If they are indurated and very painful, the relief it gives in a short time is most grateful. Bind on a soft rag saturated with linseed oil and continue to dampen it with the oil every night and morning until the corn can be removed easily and without pain.

Marriage.

Nothing could be more to the point, more just and truthful, than the utterance of a judge in a divorce case, in stating the rights of a wife in the marriage union. "When a woman gives up her soul and body to a man in marriage she is entitled, by the spirit, the sanctity, the divinity of the relationship, to more than a mere husband at law, to more than a house for a shelter, clothes to wear and food to eat ; she is entitled to respect, to confidence, to companionship, and to unfaltering love ; she is entitled to chastity, as spotless as is demanded of her, not chastity born of ice, but chastity like charity, that does no evil and thinketh no evil ; and when the wives of America are so married, letters like these will not need to be understood, because they will not be written." There would be little room for divorce courts and divorce lawyers if the married woman was to receive all to which, in the language of the learned judge, she is entitled. We hazard nothing in saying that in the great majority of divorces the husband was originally at fault. It is too much to expect that a neglected wife will not in turn sometimes become desperate.—*New York Medical Times.*

Disease by Mail.

All varieties of lymph and germs are sent through the post-office, although they come under the head of the prohibited. One day last spring one of the assistants nearly had a spasm when he discovered that he was handling a bottle of diphtheria germs. One day four bottles of germs passed through the New York post-office.

Nervous Headache.

A vibrating helmet for the cure of nervous headaches has been devised by a French physician. It is constructed of strips of steel, put in vibration by a small electro-motor which makes 600 turns a minute. The sensation, which is described as not unpleasant, produces drowsiness; the patient falls asleep under its influence, and awakes to find that the pain has ceased.—*Popular Science News*.

Scarlatina by Mail.

A new way of spreading scarlatina is mentioned by a physician in a country village, which ought to make us thoughtful. The only case of scarlatina which this physician acknowledges to have lost, was one in which the disease was communicated by a letter written by a mother (in whose family there were two cases of scarlatina) to a friend 100 miles away. The envelope of that letter was given to a child as a plaything. That child died from the same disease, and this was the only possible means of infection.

Heredity of Tuberculosis of Bones.

Dollinger observes that parents who consulted him on account of tuberculosis of the bones and articulations in their children were very rarely themselves affected with tuberculosis, but in several instances the grandparents had succumbed to phthisis pulmonalis. As a result of his investigations of 250 cases he concludes that tuberculosis of the bones does not appear so often in the children as in the grandchildren of those suffering with tuberculosis. It seems that the bones must remain for some generations under the influence of the virus. They must lose some of their vital powers before they became a suitable soil for Koch's bacillus.—*Allgemeine medicinische Central Zeitung*.

The Milk-Supply of London.

According to the *Dietetic and Hygienic Gazette*, the milk-supply of London is "dangerously and disgracefully adulterated by all sorts of swindling operations." The condensed milk on sale in that city is not much better, as we learn from the report of an analysis made for the *British Medical Journal* that fourteen out of seventeen brands examined were made of skimmed milk.

Victoria and Health.

The Queen has taken a great fancy to Mme. Calve, the famous singer, and has, I hear, invited her to spend three days at Osborne House during the summer. As it is very well known, her Majesty is much interested in all matters connected with health, and the legend runs that at their first interview the Queen and the prima donna conversed, not about music, but invalidism, hysteria, and the best methods for preserving the body in the finest condition. Her Majesty declared that the best air, and plenty of it in all weathers, was the specific for most of the ills that flesh is heir to, and Mme. Calve was of the same way of thinking.—*Gentlewoman.*

An Earnest Face.

A New York paper has taken photographs of twelve women celebrated for rather advanced ideas, and has made a composite picture of them to show what the new woman type is likely to be. The twelve women are Mrs. Stanton, Miss Anthony, Miss Willard, Mrs. Grannis, Lady Somerset, Mrs. Livermore, Mrs. Besant, Mme. Sarah Grand, the Rev. Anna Shaw, Mrs. Belva Lockwood, Mrs. Lease, and Miss Lillie Devereux Blake. The average age of these women is about 45 years, so that the composite portrait has no particular attractions for the young man who wishes to know what the new girl will look like. The face shows great strength of character, but not a spark of tenderness. The eyes are deep set and terribly earnest, the brows rather contracted,—almost frowning; the expression of the mouth sour, but firm, the chin short and resolute. The face is that of a woman who would be able to run a post-office or a jail or a factory, but would be utterly incapable of repeating a nursery rhyme, of cooking a codfish ball, or of sewing a seam.

Crematory for Refuse in New York City.

On September 5, a new crematory for the incineration of city refuse, except garbage and ashes, at Twelfth Avenue and Fifty-third Street, began operations. Three car-loads of material were burned, and the inventor of the system said he was well satisfied with the result. If this system is adopted by the city it will require five or six plants conveniently located to dispose of all its refuse. The capacity of the first plant, when working night and day, is estimated at sixty tons.

Why Women Live longer than Men.

In the forty-ninth registration report of Massachusetts (1890) the compiler presents the statistics of 203 persons who were reported as having died during the ten years (1881-90) at the age of 100 and over. Of this number, 153, or 75.4 per cent., were females. By the State census of 1885 the number of females living over 80 years of age was nearly double that of males. The greater exposure of men to accidents, to weather agencies, to the constant strain of business life, to the anxiety of providing for the family, all tend to shorten the life of men. The deaths by accident among men are more than threefold greater than among women, and men commit suicide in about a threefold ratio as compared with women.—*Boston Medical and Surgical Journal*.

Disinfection in Typhoid Fever.

Even when the fæcal discharges of a typhoid-fever patient are properly disinfected, which is by no means so much the rule as the exception,—especially in country districts,—little or no attention is paid to the disinfection of the urine. Wright and Semple, however, in a recent issue of the *London Lancet*, draw attention to the frequency with which the typhoid bacillus may be found in the urine of such patients; they, themselves, have found them in six out of seven cases examined. It is suggested, further, that their presence will help to clear up the diagnosis of doubtful cases and explain the serious kidney complications which are not uncommon in typhoid fever. The late complications of the disease, regarded by some observers as due to the coli communis, are also probably caused by the wide-spread diffusion of the typhoid bacillus.

Death as Read in the Face.

A rather curious discovery has been made with reference to soldiers killed in battle. On the authority of several English army surgeons, it can be stated that the cause of death is clearly shown in the expression of the face of a corpse on the battle-field.

Those who have been killed by sword thrusts have a look of repose. If it was a bullet that brought the soldier to earth, pain, often of the most frightful nature, is clearly depicted.

Prize Essay on Hygiene.

The French Société de Médecine Publique et d'Hygiène Professionnelle offers three prizes for the best *mémoire* on "Preventable Diseases, and the Preventive Measures to be Taken." The first prize is 1200 francs, the second 800 francs, and the third 500 francs. The essay is not to exceed from twenty to thirty pages of 500 words each. The following points must be treated: How to prevent contagious diseases during the illness and after; private sanitation of patients and those who tend and treat them; house sanitation and disinfection; and general sanitation during illness.

"A Burning Fiery Furnace."

In the discussion on the cremation of garbage and town refuse in the British Medical Association at its recent meeting, Brigade-Surgeon Pringle, M.D., took occasion to call attention to the fact that the subject is a very ancient one. In the East in many places fires are still used, as they were centuries ago, as the great sanitary measure of the city, and the Tobhet or Tophet of Jerusalem, or as Milton calls it, "black Gehennum, styled the type of hell," was the place of burning refuse, where "the fire was never quenched;" and the burning fiery furnace of the plain near Babylon was only a vast receptacle for burning the city refuse; and the fact of those who threw in the Hebrew captives being burnt was due, no doubt, to some defect in the draught-shutters, by which the flames instead of passing up the chimney rushed out at the door. The plan on which this vast cinerator was built is what is seen now in the East where bricks, etc., are burnt for the purpose of securing a draught in that windless land.

Less Nutrition in Domestic Wheat.

The report of the government analysis of cereals at the World's Fair, at Chicago, just issued, comments on the dryness of the cereal products of this country, and says that they showed a moisture of about eight-tenths of 1 per cent. less than those of foreign countries examined. The conclusions reached in the report are that while our domestic wheats give a flour slightly inferior in nutritive properties to that derived from foreign samples, it is nevertheless better adapted for baking purposes.—*Philadelphia Press.*

Death from Ice-Cream.

It is well known to every one who has worked in a hospital that there are seasonal casualties and accidents as well as seasonal diseases. Thus the boiling kettle and fire accidents occur more commonly in winter, while street accidents among children, at least, are of more frequent occurrence in the summer owing to the children being out more. The ice-cream season, too, claims its victims, and every year one or more deaths are registered from this cause. The cream, of course, must be held blameless, for this ingredient occurs in such small proportions that we may neglect it. It is probable that the chief offenders in the formation of poisons are the eggs, and that, as in the case recently reported from Limerick, eggs which are not exactly putrid, but have undergone some change, probably owing to a micro-organism, are the cause of the alarming symptoms which sometimes arise from eating these confections. At an inquest held on August 14, upon a youth aged 19 years, evidence was given that he used to spend as much as five to seven shillings sixpence at a time upon ice-creams and sweets, which he devoured greedily. He died from acute gastro-enteritis. The sanitary conditions under which these ice-creams are made in many instances leave much to be desired, and we must continue to advise, as we have already done, an extension of the factory act so that private houses in which manufactures involving public interests are carried on should be duly inspected by a public official. We should be extremely sorry to eat seven shillings sixpence worth of good ice-cream, and perhaps the quantity which the unfortunate youth devoured may have had something to do with his death as well as the quality.—*London Lancet*, August 24.

Consumption and Idiocy.

A family history of consumption demands some attention, since it is shown to be far-reaching in its hereditary influences. Thus we find a family history of this kind in 674 out of 2380 inmates (28 per cent.) admitted to the Royal Albert and Darenth Asylums in England.

Dr. J. N. Kerlin, superintendent of the Institute for Feeble-Minded Children in Pennsylvania, investigated 100 families in which the cases of idiocy had occurred and found that there were 145 members of these families who had pulmonary phthisis (no cases were counted except those of grandparents, brothers, and sisters).

The alarming tendency of consumption to generate cases of idiocy in succeeding generations must be remembered, and statistics prove these deductions even though a host of "conservative" practitioners accused advanced thinkers of endeavoring to inaugurate a "consumption scare."—*Colorado Climatologist*.

Obesity and Linen Works.

Dr. Briquet d'Armentieres says (*London Lancet*) that the hands in the linen factories called pareurs, whose business it is to gum the thread used for weaving the linen, are very liable to obesity. Among 250, 90 were obese; among the other workers, only 50 to 250. This fact is startling, inasmuch as the pareurs undergo considerable fatigue in moving heavy rolls of goods and working in an overheated atmosphere, which obliges them to be very scantily clothed. Suffering from thirst, these hands drink considerably, but the recent researches of Debove and Robin cast doubt on the theory that drinking favors obesity, and at Brides obesity is treated by diaphoresis, which is the constant condition of the pareurs. The greater proportion of these hands are attacked with hypertrophy of the heart, and those who drink too much alcohol suffer from arterial sclerosis. It is rare that a pareur can work after 55 or 60 years of age. Chronic nephritis and asystolism are most frequent causes of death. Phthisis is observed between the ages of 45 and 50, its evolution generally extending over two or three years. The obese are attacked in the same proportion as the thin. The proportion is from 4 to 5 per cent. Acute pulmonary disease is rare among pareurs.

Do Flies Talk?

An ingenious inquirer, armed with a microphone, or sound magnifier, has been listening patiently through long hours to the curious noises made by house flies, and reports his belief that they have a language of their own. The language does not consist of the buzzing sound we ordinarily hear, which is made by the rapid vibration of their wings in the air, but of a smaller, finer, and more widely modulated series of sounds, audible to the human ear only by the aid of the microphone. Probably this fly conversation is perfectly audible to the fly ears, which, as every school-boy knows who has tried to move his hand slowly upon them, are very acute. The hope is expressed that, since the heretofore inaudible whispers of flies have been detected and recorded, some inventor may construct a microphone which will enable us to make out the language of the microbes, and so surprise them in the horrible secret of their mode of operations.—*London Public Opinion*.

The Alcoholic Question in Life Insurance.

In the matter of drinking, all the companies are necessarily strict. The habitual indulgence in alcohol is so manifestly followed by nervous diseases, tissue changes, and organic degeneration, especially of liver and kidneys, and this alcoholic habit has such an undoubted effect to shorten the average of human life that it is a most important point that the applicant's habit in this respect be fully understood in order to fairly estimate his value as a risk. The temperate man is sometimes a better risk than the temperance man. The teetotaler is not always temperate in other things. But generally the man who does not touch, taste, nor handle is the man who has a quiet, well-ordered life, has good moral surroundings, is happily situated in all respects, and hence is a desirable risk. One of the companies instructs the examiners in reporting "over indulgence" in drink to draw the line, since there must be some fixed standard, at Austlie's limit of a daily allowance equivalent to one and a half ounces of absolute alcohol. Such allowance would be represented by three ounces of ardent spirits; two wineglasses full of sherry or other strong wine; by one pint bottle of claret or champagne, or other light wine; by three tumblerfuls of strong ale or porter, and by four or five tumblerfuls of light ale or beer.—*Medical Examiner*.

The Hygiene and Malhygiene of Bicycling.

As reported by the correspondent of the *Medical Record*, the consensus of the Paris Academy of Medicine, after much discussion, "seems to be that moderate exercise on the bicycle is advisable in neurasthenia, anæmia, dyspepsia, gout, obesity, slowness of nutrition, and where moderate muscular movement is required. It is absolutely forbidden in phthisis, organic disease of the heart, and albuminuria. For girls, especially, it is not only ill-suited but dangerous. The writer knows of two cases of metrorrhagia brought on by mild bicycling. The amount of injury done to the pelvic organs of young girls just reaching womanhood will not be long in making itself felt in the shape of uterine versions and flexions, or cellulitis, to say nothing of other such serious complications as those mentioned above."

The Health of a Bacillus.

Dr. C. H. Tebault, of New Orleans, in a recent edition of *Gaillard's Medical Journal*, quotes Professor Peter, of Paris, as follows: . . . "I have seen different germs produce identical accidents. I can go further, and say identical germs can produce different diseases. I have seen the bacterium coli, the virgule bacillus of Finkler, produce cholera. I have likewise seen the bacillus coli produce cholera, dysentery, and typhoid fever. . . . From these facts I conclude that the bacillus is not unhealthy by itself, but that it may become so, and acquire new properties in the midst where it vegetates. . . . I have come to the conclusion that we, ourselves, owing to some internal modifications, develop cholera and dysentery, and it is this change that modifies an innocent bacillus and endows it with toxic properties, that it may transmit to others. . . . The inoffensive bacillus is cholerized by the cholera."

In these days it behooves a healthy, innocent bacillus to look a little out when he goes for his promenade lest he find his way into a dysenteric bowel and get poisoned. If this nefarious business of poisoning bacilli with the choleraic discharges and the diseased human excreta is not stopped, the health of the bacilli as a body will be endangered, and we will look to Professor Peter to suggest a method by which the continued innocence of bacillus may become an assured fact.—*Colorado Climatologist*.

The Germ Theory.

Dr. D. S. Maddox, in *Columbus Medical Journal*, says, I believe the germ theory is being carried to extremes, even to absurdity, in some directions. It is a highly suggestive fact that no remedy of approved utility in the treatment of disease has yet come from the laboratory of the bacteriologist.

The remedies we rely upon in treating disease are the result of long, clinical experience by men who have studied disease at the bedside. The bacteriologist is all right in his laboratory, surrounded by his microscopes and cultures, but in the field of practical medicine he has not proved a brilliant success. But yesterday the world was sounding the praises of Koch ; he was an uncrowned king of the age of germs ; the journals were full of the cures wrought by tuberculin ; but to-day we cannot point to an authentic cure by Koch's remedy, and Koch himself has retired into obscurity.

Behring, with his serum, will, I predict, soon finish his meteoric flight across the medical heavens, and leave no trace of his brilliant passage, "like a poor player, who struts and frets his hour upon the stage, and then is heard no more."

Candlewick Filter.

A very pretty and simple domestic filter is described in *Good Health* as made by simply passing through a bent tube, of glass or rubber, a number of strands of wet cotton candlewick, or soft yarn, sufficient to fill it, not too closely. One end of the packed tube being placed in a vessel of the water to be filtered, and the other end left to hang out below the level of the vessel's bottom, the water will be very slowly siphoned out, by capillary attraction ; and as cotton is one of the very best of filtering materials, arresting even microbes, the purification of the water from suspended matter must be complete, provided that the cotton be changed very often, according to the quality of the water. Any necessary quantity of cotton can be kept on hand with slight expense. Finally, put a grain of dissolved alum into each gallon of water to be filtered, so as to coagulate any dissolved organic matter, change the cotton daily, to be safe, and we cannot see why the result should not be as near to perfection as water can be brought. To keep it perfect, let the filtered water drip into a closed vessel, with a light cotton packing in the aperture about the tube where it enters the receiver.

Chuck Full of Soup.

A senator from the far West, new alike to congressional honors and the ways of society, was invited to a very swell dinner given by a wealthy man who wanted "influence." Here is a part of the letter the senator wrote home the day after: "It was the finest house you ever see and the finest folks. . . . The table was set out in bang-up style. Lace on the table cloth and sech flowers as I never see! But not a thing to eat on it but some candy, some little nuts all shelled and sech things. But by and by one of the men standing around brought me some of the finest soup you ever e't. And as I didn't see nothing else to eat I had some more and some more. And then—what do you think? Hang me, if those men didn't bring on the finest dinner you ever see, and there I sot, like a darned fool, chuck full of soup."—*Boston Budget.*

Tests Air Impurity.

A novel instrument has been invented by a scientist named Aitken which enables the condition of the atmosphere in a room to be seen at a glance. It is called the "kinoscope," and measures the amount of impurities which any given volume of air contains. Everybody is familiar with the blue tinge which distance lends to far-off objects, such as hills, etc. This is due to the dust and impurities in the atmosphere between the observer and the object seen. The same thing is true of an object 100 feet away, but the blue tinge is so faint as to be quite imperceptible to the naked eye. By the use of diffracting lenses, however, the blue tint can be seen even in a very small volume of air.

The kinoscope consists of a metallic tube terminated at either end by a glass chamber. At one end is a pump which exhausts the air from the tube, and at the other a faucet which allows the air of the room to be tested to be drawn in. Some damp white blotting paper is placed in the tube, and by means of diffracting lenses the tint of the air is thrown onto the blotting paper. The strength of the blue tinge denotes the condition of the air.

It has been found that 4,000,000 atoms of dust will cause a light-blue tinge to appear upon the white blotting-paper background. A very pale-blue shade will indicate about 500,000 atoms, while 50,000 give a faint-blue shade which is hardly visible.

Two Weeks' Vacation in Bed.

J. M. Barrie suggested, in one of his skits, that the best way to spend a holiday was to spend it in bed, but until quite recently this theory was never put into actual practice. Two hospital nurses of London tried it the other day, however, with the most pronounced success. They each had a fortnight's vacation, and they hired a cottage in the country and engaged an old woman to attend on them. The inhabitants of the little community were not informed regarding this novel project, and as the days went by and the new-comers were never seen the neighbors naturally were astonished.

Some suggested that there was some terrible mystery about these women, and that their strange and unnatural behavior should immediately be probed. It was even thought advisable to have a consultation with the police of the district. The little cottage was not molested nor its secrets pried into, and the story did not come out until the two ladies, their vacation over, made a call upon the vicar, and after giving him a small sum for charity, explained the matter.

It appears that they had practically spent their whole time in bed. For a year past they had got their sleep in such short snatches and subject to so many interruptions that their one idea of a blissful holiday was a season of absolute and undisturbed repose.—*New York World*.

Hypnotized into Sickness.

The most astounding instance of hypnotism by "suggestion" comes in a report furnished to the French Society of Hypnotology and Psychology by M. Gorfichze, an expert in mesmerism. The story he has to tell is of a little girl of 11 years in one of the French provinces who used to accompany a cousin, who was a country doctor, on his rounds, and in this way got to understand a good many medical expressions.

One day she fell ill. The illness was slight, and she was on the high road to recovery when her cousin, the doctor, happened to say unthinkingly and smilingly in her presence, "Oh, good heavens! She is paralyzed!" At once the child exhibited every symptom of paralysis, and she remained in that state at the will of the doctor. Afterwards he asked her if she was not becoming consumptive, and immediately she began to suffer from the

dreadful coughing and blood spitting that consumptive patients have.

She seemed so extraordinarily open to every sort of mesmeric "suggestion" that the doctor tried her with half the diseases known in medical annals, and one by one she responded to them all. He needed only to remark that she was cured to have her perfectly well a moment later. Perhaps the strangest of the experiences she went through was when one of her school-mates got a paper pellet in her eye. From pure sympathy the child imagined that she had the same trouble, too, and she rubbed her eye to such an extent that she felt the pain of it for nearly a year.—*New York World*.

Loquacity and Old Age.

In France a census of centenarians has just been taken, and the tabulation shows 213 persons in that country who are over 100 years of age. Of this number only sixty-six are men, or less than one-third. An amusing comment on this has been going the rounds in Paris to the effect that the reason for this surprising comparative longevity of women is their proneness to talk and gossip at every conceivable opportunity. Constant chattering, it is said, leads to the active circulation of the blood, and thus renews the tissues of the body daily and renders the frame particularly strong.

In all seriousness, however, have several French physicists taken up this matter, and they have come to the conclusion that the reason so many more women have attained a greater length of life than men is because they have passed through less turmoil and trouble, and have had more calm and less impassioned existence. One case in point is that of an old lady who died recently in the Haute Garonne, having lived 150 years. She is supposed to have been the oldest woman of modern times, and all her life was spent peacefully in a hamlet in this district. The closing decade of her life she was fed on goat's milk and cheese. In the last few years of her existence her body became attenuated to an extraordinary degree, and her skin came to resemble parchment.

The French centenarians are, as a rule, of the lowest class of society and extremely poor.—*New York World*.

The Health of the Pope.

Our Rome correspondent writes, "The *al fresco* life His Holiness leads in the beautiful demesne between the Vatican palace and the Janiculan has told favorably on his health, which, all things considered, was never better than to-day. For one thing, he has no threatening of those fainting fits (*deliqui*) which, in the spring months especially and during the exigencies of urgent business, were apt to overtake him. With due allowance for the *anæmia senilis*, of which he has more than the average octogenarian's share, this result is of very good omen. The commendatore, Dr. Lapponi, archiatro to His Holiness, in reply to an interrogatory addressed to him the other day, felt warranted in saying, 'If nothing unforeseen happens, the holy father's constitution is so sound that he might well attain his hundredth year.' No one is more familiar with that constitution, I may add, than Dr. Lapponi, who was Leo XIII's medical adviser as far back as the days when he was cardinal archbishop of Perugia. The moment his eminence became supreme pontiff he would have no other body physician than Dr. Lapponi, and certainly the measure of health he has enjoyed under a mental and even physical strain that would have tested the vitality of far younger men says much for the judgment and care with which his health is safeguarded. Besides following scrupulously Dr. Lapponi's prescriptions, Leo XIII observes the simplest diet compatible with effective sustenance. 'Little at a time and often' is his rule, his principal meal consisting of a cup of strong soup, a slice of boiled beef with a yolk of egg, and a wineglassful of Bordeaux or well-matured Marsala. Truly a commendable example of 'plain living and high thinking.'"—*London Lancet*, August 24.

The Menu of Mankind.

Nature has provided a vast, curious, and interesting bill of fare for mankind at this great table of the earth. The elements that contribute to it come from all seas, lands, climates, atmospheres, and they come swimming, creeping, flying, climbing. The ogre man, going about seeking what he may devour, devours almost everything he sees; he does not care whether it comes out of the depths of the ocean, the ground, or the encompassing sky. The only question he asks is, Is it good for me to eat? That answered favorably he opens his mouth and swallows; neither

queer and ugly shape nor repulsive color will make him shrink. In his long experience of eating he has learned that the taste of some things is not pleasant, that some make sick and some kill ; these he lets alone ; the rest he eats.

There is a Greek myth about some giant who ate the earth. Man is that giant. Man has been defined as "an omnivorous biped who wears breeches." This is not in its entirety a true definition, for all men do not wear breeches. But the first part is almost true, and relatively to other creatures it is quite true. Other creatures confine themselves to comparatively simple fare ; an ox wants only grass and corn ; a lion wants only flesh of certain kinds ; but man takes in the whole range of the earth's products, in some of its species.

Nature has arranged foods for her favorite, man, to whom she has given so great an appetite, in what may be called natural courses. As we sit down to table with mankind, we will take a glance at the whole bill of fare. At the top of the list are the mollusks and crustaceans, those skeletonless creatures whose tender, delicate substance melts in the mouth with so delicious a flavor. Most famous of these, used from remote times by savages and civilized peoples, whose shell-heaps remain in evidence, is the oyster, native to all temperate seas, but found in greatest perfection along the coasts of Europe and the Atlantic coasts of North America. The oyster did not have to await the appreciation or the cultivated epicure, but won his way into the affections and stomachs of the primitive man, who, as Lang elegantly puts it, "dwelt in a cave by the seas and lived upon oysters and foes."—CALVIN DILL WILSON in May *Lippincott's*.

Care of the Baby.

I have been talking with a young mother about her baby, writes a woman. She tells me there is nothing in the world about which every one is willing to give so much free information and advice as upon this subject of a new baby. One woman who comes in to call upon her looks the baby over, and says, "You pin it too tight." Then she unpins its surcingle and things, and the next woman who comes in says, "Oh, you must pin its clothes tighter ; you'll make it pot-bellied." Then she pins it up again. Another woman says, "You don't feed it enough ;" the

next woman says, "You feed the child too much." Another woman recommends saffron tea, and somebody else catnip. Another woman says, "You bathe it too often," another, "You don't bathe it often enough," and another tells a story about the rickets. One woman says, "Never rock your child," and another says, "Its clothes are too long." Everybody examines its flannels, and most persons think she dresses it too warm, and others warn her against croup. She keeps a poison antidote list on the wall and sleeps with a thermometer on the head of the bed and croup medicine under her pillow, and carries camphor gum in her pocket. She is in a flutter from morning till night and from night till morning, and is so apprehensive that when that baby looks crosswise she is plunged into anxiety and despair. Then, when her husband comes home and she suggests a new plan of action for that baby and confesses that Mrs. Wiseacre confided the principle to her, he grows fierce, and assures her that he offered that same idea weeks ago, but she refused to follow it. Then he calls his female advisors "old hens," and about that time any young mother's cup of sorrow is pretty full.

There is such a lot of cruel realism mixed up with the ideal in life.

Children's Ailments and Household Preventives.

Some ailments of children are like a simple mechanical puzzle,—obscure, complicated, alarming in their symptoms, very troublesome if mismanaged, but in their cause and explanation simplicity itself. Last week a boy was taken ill from the effects, as was supposed, of a heavy dinner. Thanks to the guiding symptom of pain the true seat of his disorder was quickly discovered, and the rectum was found to be tightly packed with the broken but unmasticated fragments of nuts, a meal of which he had recently consumed on his own account. An anæsthetic and forceps relieved him of his load, the more usual means having failed to do so. A mouth full of decayed teeth showed how, in his case, mastication was wellnigh impossible. The danger of allowing so much rough and hard matter in a state quite incapable of digestion to traverse the length of the intestinal tract or to become impacted at some point in it is such as even an unprofessional mind can appreciate. This case, unique perhaps in actual particulars, is one of many, some of them as clear and some ob-

scure in character, but all capable of much mischief and misunderstanding, which bear one common accusation,—indiscretion in diet. Now it is a poisonous ice-cream, now a stale fruit, now a mass of broken nuts. The inevitable question arises, Who is responsible? And its answer will usually acquit the salesman if he be acareful and fair dealer. Child and parent, therefore, must divide the blame, if any, and of the two the more intelligent will naturally have the larger share. Such cases as that above quoted should at all events impress upon parents the lesson, too little regarded, that failure to warn, and to prevent if needful by active measures, the heedless indiscretions of their children may at any time induce, perhaps by very simple means, an illness of the greatest gravity.—*London Lancet*, August 24.

Healthy Habitations.

People who keep their houses dark for fear of the sunlight spoiling their carpets and furniture, says the *Family Doctor*, have no idea of the disease-destroying influence of sunlight and air. Recent experiments made in the Pasteur Institute have shown that bacilli exposed to the sun and air were destroyed in two hours, while those exposed to the sun, the air being excluded, were alive after fifty hours of exposure. It was thus ascertained that the oxygen of the air had a marked effect in assisting the sun's rays, and that the bacteria suffered more from the sun's rays if the supply of oxygen was increased than if it was diminished. Certain liquids, too, which will undergo putrefaction in the dark will remain sweet and free from bacteria when exposed to the sun's rays. Air and sun are nature's great purifiers.

Householders who in cold weather keep their window-shutters closed with the aim of excluding the wintry blast, are also depriving themselves of the warmth which even diffused sunlight so generously donates. Strike a balance, and you will probably find it never pays to decline the sun's assistance. Even the moral effect of the light of day is a factor in warming the inner man not to be despised.

Much of the discomfort experienced in our winter home-life is due to the extremes of temperature found in various parts of the house. Some rooms are kept much too warm; doors might often be left open between rooms thus communicating, so as to

equalize matters. It is poor economy to shock our bodies by passing from 75° in the sitting-room to 60° or less in the passages and dining-room or bath-room.

The floors of many dwellings are never comfortable, and special footwear is desirable to be used on first arising. Woollen slippers or overshoes, galoshes, etc., may be worn for this purpose and will keep the animal heat in the body at this point of contact with the cold, cold world. Remember that first impressions are very lasting, and our bodies are very grateful for a little protection and encouragement offered in the morning hours, when the life forces are awakening for their task. A little attention of this kind often determines the atmosphere of the whole day.

In all weathers the sleeping-room should be at a lower temperature than the living-room and more fresh air should be allowed to enter. In the very bitterest weather, there are often enough cracks in the window to allow of fairly good ventilation, even though the window be closed. It is especially when double case-ments and weather strips are used that allowance for air entrance should be made. This applies only to the very coldest seasons, when the thermometer shows a temperature of zero or thereabout. —*Popular Health Magazine.*

Novel Treatment for Acute Alcoholism.

A young wife had just settled in her new home. All seemed fair and promising, but one night her husband came home very late and staggered into the house. His wife was greatly shocked, told him he was ill and to lie down at once. He did so. His face was reddish-purple, his breathing heavy, and altogether he was a pitiable-looking object. Mustard plasters were applied to his hands and feet. When the doctor came, felt his pulse, examined him and found that he was drunk, he said,—

“He will be all right in the morning.”

But the wife insisted that he was very ill and severe remedies must be used.

“You must shave his head and apply blisters,” she urged, “or I shall send for some one who will.”

His head was accordingly shaved closely and blisters applied. All night he lay in a drunken sleep, notwithstanding the blisters.

About daylight he awoke to a most uncomfortable consciousness of blistered agonies.

"What does this mean?" he said, putting his hand to his bandaged head.

"Lie still,—you mustn't stir," said the wife; "you have been very ill."

"I'm not ill."

"Oh, yes, you are; you have brain fever. We have worked hard with you all night."

"I should think you had," groaned the victim. "What's the matter with my feet?"

"They are blistered."

"I'm better now. Take off the blisters; do," he pleaded, piteously.

He was most uncomfortable; his head covered with sores and his hands and feet still worse.

"My dear," he said, groaning, "if I ever should get sick in this way again, do not be alarmed or send for a doctor, and, above all, do not blister me again."

"Oh, indeed, I will. All that saved you was the blisters, and if you should have another spell, I should be more frightened than ever, for the tendency, I am sure, is to apoplexy, and from the next attack you would be likely to die, unless there were the severest measures used."

From that day he has not had another attack of drink.—*Dover's Journal*.

The Dangers of Long Journeys in Certain Diseases.

In the *Journal des Praticiens* for July 20 there is an article by M. Huchard, in which he calls special attention to arterial cardiopathy and interstitial nephritis. Some years ago, he says, a man 50 years old, who had arterial cardiopathy, showed slight symptoms of renal insufficiency, with hyposystole, although there were no traces of albumen in the urine. The patient intended to make a long journey by rail, and M. Peter, who saw him in consultation with M. Huchard, made no objection to this. They were very much astonished, says the author, to hear that, two days after his arrival at Nice, he had been taken with dangerous symptoms of acute uræmia and had died in less than a week. In the same year another patient suffering with the same trouble died after a journey of twenty-six hours by rail. M. Huchard has also seen the same symptoms supervene in identical conditions, but without a fatal termination.

The trembling motion of the train, says M. Huchard, which so quickly produces symptoms of renal congestion and genito-urinary excitation, leads to the transformation, in arterial cardiopathy, and especially interstitial nephritis, of incomplete renal impermeability to a complete impermeability, from which sometimes arise the fulminant symptoms of uræmia. M. Huchard thinks that patients who suffer with arterial cardiopathy or with interstitial nephritis, with slight symptoms of renal insufficiency should avoid long journeys by rail. If, however, a long journey has to be taken, it should be done in easy stages, with intervals of several days of rest.

The following examples, says M. Huchard, demonstrate the unfavorable influence of long journeys on patients suffering with these troubles : A patient who had come under Prout's observation suffered very much from cold and sea-sickness during a tiresome voyage and died the following morning. Charcot mentions the case of a woman who, before leaving Paris for Switzerland, made a number of calls on foot and returned home completely exhausted. The following morning she became comatose, and death occurred very rapidly. Foster cites an observation of a man who took a very long walk in order to reach his home. He complained of feeling very tired, and on the next day symptoms of diabetic poisoning set in and he died on the third day. M. Huchard himself has observed a diabetic who suffered with arterial cardiopathy. This patient went to Paris, where he spent some time in taking long walks about the city. Eight days afterwards he became comatose and death rapidly supervened. Here, says M. Huchard, the aggravation of the disease cannot always be attributable to renal congestion, nor can the long journeys by rail be given as the pathogenic causes of the symptoms. It is known that the muscles, which are alkaline in a state of repose, become acid after repeated and energetic contractions, for a muscle that is tired is a muscle poisoned by acids, and especially by lactic acid. Now, fatigue, long walks, and violent exercise act in the same way as diabetic poisoning, which is nothing but an acid poisoning.—*New York Medical Journal*.

House-Nerves.

"House-nerves," says the *Calcutta Medical Reporter*, "is the latest name invented by medical experts for the peculiarly depressing set of ailments which afflict people who stay in-doors too much. The discovery of the novel malady is due to a journal

devoted to science, and it is a mark of unusual and undoubted condescension that the name of the disease should be so simple and so easily understood. There was nothing, as far as can be seen, to prevent the scientific godfathers from naming their child 'Oekoganglia,' or something equally terrifying to the unsophisticated. Merely as 'house-nerves' we can regard the ailment with some complacency, but for all that it is not a thing to be laughed at. All over Europe the rush of existence is playing havoc with our sensitive cerebro-spinal fibres. We recognize all the symptoms which the inventor of 'house-nerves' describes as quite common in England to-day. They are 'low-spirits and brooding,' much irritability and a general 'morbid habit' of mind. 'Women,' we read, 'especially women who are delicate and afraid to go out owing to the weather,' are those who suffer most from this malady. They have a way of imagining that something awful is happening to their husbands and children when they are out of sight; they 'conjure up accidents, analyze their feelings, and lose their power of will.' All this occurs because people are too sedentary, and stay at home too constantly. Unfortunately, a housewife, as her name implies, is one whose duty is to stay at home or a considerable portion of each day; and all the mischief arises from her not being able to tear herself away from home ties and forget all about them in some form of out-of-door amusement or occupation. A woman who gets 'house-nerves' begins to study herself, her own wants and ailments and loneliness to a painful extent, until—we are solemnly warned—she 'is on a fair road to an asylum, did she but know it.' Journals devoted to medical science often indulge in these pleasant little predictions; yet the reading public never accuse their editors of suffering from 'science-nerves.' Putting aside the hint of the asylum, as both alarmist and irrelevant, we have to admit that there is a great deal of truth in the idea that 'all home and no spree makes Jill a dull she.' Not only does it make her dull, but it often, in humbler walks of life at any rate, gives rise to that 'nagging' which drives the husband to the public house or deplorable personal violence. There may be happy lands—say Boeotia or the peasant state of Bulgaria—where nerves are unknown. Probably they affect the South of Europe less than they do the North, because there the climate allows 'the life being passed more in the open air, and sunshine and ozone are great nerve tonics. In Russia the consumption of tea, and Tolstoi leads inevitably to neurotic catastrophe. Nor is

Europe the only sufferer. In no country in the world are human nerves exposed to greater wear and tear than in the United States. The combined effects of the negro question, unlimited candy, an addiction to rapid eating, iced drinks, and business hurry, are too powerful for any nerves not built of cast-iron to withstand; and thus it comes about that the typical American is a neurotic patient long before he has attained to middle age. Fortunately, the disease is not left without a remedy, and the prescription for a person afflicted with 'house-nerves' is a very agreeable one. There is no help to be got from medicine or doctors. All that has to be done is to pay visits to others, to take long walks in the open air and sunshine, and to go in generally for gayety and innocent amusements. The patient is also recommended to 'repress every morbid thought as it arises, or expel it by thinking of a necessary duty.' This advice is, perhaps, more easily given than followed. Hundreds of people would be only too delighted to repress morbid thoughts, but the more they try to repress them the more morbid do they become. It is sad to think that not only adults, but also 'imaginative children,' suffer from the 'domestic nerve,' and when such is the case they should be sent to 'play with merry companions,' whose merriment, let us hope, will be subdued enough to spare the 'house-nerves' of other people. Of course, there is nothing strikingly novel about the advice to try out-of-door exercise for morbid mental conditions; but these 'hints to those about to go into hysterics' will be of use if they help to impress on us the fact that a good deal of the excitability, the irritability, and the depression which afflict so many nowadays are really of the nature of a disease, and should be treated with common sense remedies instead of useless reproaches."—*New York Medical Journal*.

Sewage Organisms and Disease.

In his reports presented to the London County Council, Mr. J. Parry Laws, F.I.C., made the important observation that the micro-organisms contained in sewer air were not only less in number than the micro-organisms in fresh air in the vicinity at the same time, but that they were also apparently related to and derived from those of fresh air rather than sewage, while there was no evidence forthcoming that sewage was able to give off micro-organisms to the air in contact with it. Acting on the

instructions of the Main Drainage Committee of the Council, this investigation has since been extended by Mr. Laws, with the assistance of Dr. Andrewes, to a study of the organisms existent in sewage. From a copy of the valuable report which has recently been issued, and which contains a careful series of well-chosen and laborious experiments, the *Lancet* gathers the following: The most striking difference in the bacteriology of sewage and sewer air appears to be the absence of moulds from the latter, while in the former moulds were found to be a predominant feature. The bacillus coli communis was found, with one exception, in each sample of sewage examined, but neither it nor its allies were ever found in sewer air. The bacteria of sewage rapidly liquefy nutrient gelatin, while organisms possessing this property were practically absent in sewer air. This evidence would seem to be conclusive that there is no relationship between the organisms of sewer air and sewage, and the writers are thereby led to think that some of the ill effects which have been erroneously (?) ascribed to sewer air may be due to subsoil air derived from soil polluted by constant infiltration of excremental matter, but suggest that it is not until the outer margin of the permeated soil has become dry that the air is infected with organisms. In a search for the typhoid bacillus in sewers, where it might be expected to be present in large proportion, such as in the drains of the Eastern Hospital at Homerton, they were successful in demonstrating the actual presence of the bacillus typhosus; but in a sample taken about a quarter of a mile away no single colony developing on culture could be referred to the bacillus of typhoid fever. In the light of this and other results it is concluded that sewage, even in the absence of the normal micro-organisms which it contains, is clearly an unfavorable medium for the growth of the typhoid germ, whereas the colon bacillus can grow and multiply freely in it. It might be anticipated, it is pointed out, that in competition with other organisms, able to grow well in sewage, the typhoid bacillus would die out even more speedily. These experiments are only preliminary and are necessarily incomplete, but they give a distinct indication of the probable fate of typhoid bacilli which gain access in a living condition to sewage, while it seems "clear that sewage does not form a medium in which much, if any, growth is possible for them under natural conditions, and their death is probably only a matter of a few days, or at most one or two weeks." Obviously, this resistance to growth may

be overcome by attenuation, as when sewage has access to the drinking-supply or to milk.

It would appear, then, that so far as bacteriological analysis goes there is no ground for believing that sewer air plays any part in the conveyance of typhoid fever ; but are the conditions under which the bacteriological examinations of sewage and of sewer air are made such as to give us absolute assurance on these and other points ? In spite of its apparent bacteriological innocuousness no one entertains the least doubt that sewer air is a constant source of disease, and if this is not to be referred to micro-organisms, to what may it be ascribed ? There is undoubtedly a poisonous agency at work when sewer air is inhaled, which, though it may not directly act, yet so prepares the soil that the system is unable to resist the invading organism when it comes. In some well-known experiments it was shown that when rats, among other animals, were inoculated with a weak growth of typhoid culture, after previously being exposed to sewer emanations, they nearly all succumbed. On the other hand, rats treated to the same dose of typhoid culture, but exposed to fresh air after inoculation, showed little sign of illness, and eventually recovered. What, then, is this poisonous constituent of sewer air which leaves the system defenceless against the attacks of the microbes which it may encounter ? An investigation on this point would form, we suggest, an excellent and fitting sequel to the above valuable contribution.—*Medical Record*.

Microbes in Cloth.

“Microbia,” or the science of microbes, is becoming more and more an exact study, and theories which lacked confirmation a few short months ago have now become medical facts. Perhaps the latest discovery in the realm of bacteriology is regarding the enormous quantity of bacilli that are to be found in cotton and woollen clothes. Herr Seitz, a savant and physician of Munich, has recently made a series of careful investigations of bits of cotton and woollen goods, and the result of his researches, as he gives it out, contains information that is startling and worthy of careful attention.

Herr Seitz's experimenting has been done with pieces of cloth about one-eighth of an inch across. In the average bit of

woollen goods, of this size, he discovered 956 microbes. The pieces examined were cut from a woollen stocking. In a piece of like size, cut from a cotton stocking, he found an average yield of 712 microbes.

These bits of cloth had all been worn. But Herr Seitz's experiment did not stop here. He carefully tested bits of a glove that was quite new and fresh, and had never yet been upon any hand. In that thirty-three microbes were discovered on the average, all the pieces examined having been of the above size. Other experiments quite as interesting this German physician made, with the result of formally establishing the theory that microbes exist to a greater or less extent in all wearing apparel.

It must not be supposed, however, Herr Seitz contends, that all the varieties of bacilli found in clothing are breeders of dangerous diseases. Some of them have been proved by science to be quite harmless, but the mere fact that microbes can and do exist in clothes, and grow fruitful and multiply there, is an alarming one. With this theory made into a fact, the peculiar spreading of contagious diseases can be traced much more easily and precautions more readily taken. Accepting the fact that nearly all clothing is the seat of some type of bacilli, it is not difficult to see how certain sporadic diseases spring up.

One especially valuable bit of medical data has come to light through these experiments, and that is to the effect that the bacilli of typhoid fever can be preserved in wool, under ordinary conditions, for twenty-five days. A vigorous application of this knowledge may do much to ward off typhoid fever in future.—*New York World*.

School-Rooms are too Light.

At the late meeting of the American Medical Association in Baltimore, Dr. A. G. Field, of Des Moines, Iowa, was invited by a vote of the Section on Ophthalmology to present verbally before that Section any points in his paper previously read before the Section on State Medicine that related to the subject of ophthalmology.

The doctor stated that his paper contained two suggestions which possibly might be considered of interest.

First, as to the effect of bright light in school-rooms as a cause of progressive myopia during school-life, and, second, the

use of bits of sensitized paper as a means of determining the degree of intensity or quantity of light in school-rooms with a view to its regulation. A color scale made by exposing separate pieces of sensitized paper one hour in rooms in which the proportion of glass area to floor area varied from one to twenty to one to one, was exhibited, showing a regular gradation from slight tinge of brown to black, the intensity of color in each case expressing with exactness the intensity of light in the several rooms.

He believed that near vision and vision in bright light both result in an elongated or myopic condition of the eyeball temporarily, which by frequent repetition or long continuance becomes permanent and incurable; the first by changing the conjugate foci of the lens, the second by contraction of the pupil.

The subject is susceptible of demonstration by the use of a photographic lens of the rectilinear type. When focussed upon a distant object those near are out of focus, the image of them falls behind the screen, and the box must be elongated to obtain a sharp image. Also, when an object is in focus with a large stop in the lens, that stop removed and a small stop substituted, the image again falls behind the screen, requiring extension of the box to obtain a sharp image. The screen, of course, represents the posterior wall of the retina.

Statistics show that myopia increases with the continuance of school-life everywhere, to prevent which in some measure substitute to the greatest practicable extent the use of charts and black-boards for books; and regulate and modulate light in the school-room with mathematical precision and care.—*Popular Science News*.

Never Again a Cholera Panic.

A newspaper interview of some of the New York health officers, regarding the delayed approach of cholera to these shores this year, has excited much interest. Hopeful and optimistic views prevail. Among others, Dr. Roger S. Tracy, of the City Department, was interviewed. He gave it as his opinion that there will never again be a cholera scare in New York like that of 1892, and that there is safety for that city so long as sanitary laws are well enforced, and wholesome water is abundantly supplied. Even if a few infected immigrants were to reach quaran-

tine, there would be hardly any danger of the disease becoming epidemic, for the means of stamping it out are at the command of the governing powers. The health authorities of Germany, France, and England are now confident of their ability to deal with cholera promptly and successfully. The Germans have this year had experiences even more satisfactory than those of last year, and have been able to guard their country by methods as scientific as they are easily applied. Dr. Tracy, in discussing the subject, applies it to the germ-theory of disease with that fulness of confidence which is derived from long familiarity with it. "No cholera scare hereafter," he says. There can be merely guesses as to the extent to which the disease prevails in China. In the despatches there are occasional references to its existence in the Liao-Tong peninsula, and in the kingdom of Corea, and there is every reason to believe that it has been very destructive in these regions. From the trustworthy statistics that are kept by the Japanese authorities, it is learned that up to the close of July there had been 9500 cases of the disease in Japan, more than one-half of which had proved fatal. This fatality may be regarded as part of the price paid by Japan for her victory over the Chinese. In some other countries besides those here mentioned, including Mexico and Cuba, there had been cases of cholera during the year, but it has not been epidemic in any of them. It has been estimated by good authorities that the average yearly number of deaths from cholera, the world over, is close upon a quarter of a million. It is now known that in Russia alone last year there were nearly 100,000 cases of the disease, about 45 per cent. of which proved fatal; but the ravages of the disease among the Russians are light as compared with the losses among Asiatics.—*Journal of American Medical Association.*

For Consumptives.

Mr. Turft, a philanthropist of Boston, has purchased 5000 acres of ground near Southern Pines, North Carolina, on which he will erect 500 cottages for the benefit of persons suffering from consumption. He says that he will provide easy employment for the class of persons for whom he has seen fit to make homes.

Brain Work and Muscular Exercise.

The perfect human being is he in whom every organ and part is judiciously used. The strongest man is that man who is not specially developed. Such a man as Sandow represents special muscular development. The most perfect muscular man would be his inferior in a speciality of work, yet infinitely his superior in breadth of muscular function.

This comparison applies equally to mental workers. Men who use their brains in special lines develop them at the expense of the whole. A brain thus developed possesses points of irregularity, being excessively strong in certain directions and weak in others. These variations from the normal indicate a tendency towards a diseased condition. If the mental parts of man are developed at the expense of the muscular system, the result must be in the direction of disease. There may result great mental strength, but there cannot be the best of mental functions. If it be true that the best result of mind comes from the most judicious use of every organ and part of man, it is also true that when an organ is used at the expense of another, that other must of necessity suffer.

The great error of this our present age is the lack of muscular exercise among brain workers. When they arrive at their most effective period of mental development, the entire force of the individual is applied upon the brain to the exclusion of a proper and judicious use of the muscular system. The muscular system and all organs of the body are rendered subservient to a strained and overburdened brain, and the result must be the production of a weak, if not a diseased, mentality. Men in the prime of life are prematurely aged and have white hair and wrinkled faces and inelastic step, with insomnia and various neurotic states which influence not only the individuals themselves and the begetting of progeny, but all around them. By the using of brains to the exclusion of proper muscular exercise we get progression and rare gleams of mental products; but it is the mentality of tension untempered by judicious use. In the conduct of great enterprises, where executive ability is taxed to its utmost, it is generally found that the executives exercise their brain to the exclusion of their physical nature. The product of such brains, while seemingly thoroughly effective, shows in crucial test erratic flights and vagaries which demonstrate the lack of equilibrium.

The world's largest and most important interests are presided

over by injudicious brain users, and many of the ills of our present life can be traced to this source. While they constantly and enormously exercise certain faculties of their mind and develop them to a wondrous extent, the entire system suffers as a consequence; there ceases to be a proper union of mental and muscular effort. Seated within their offices from early hours in the morning, these men become simply brain workers and give evidence of exalted and abnormal function. It has been ordained that every man must earn his living by the "sweat of his brow." Mental work does not fill this injunction. It is only the muscular exercise which meets the full indication.

Throughout the length and breadth of this land men of rare business capacity, men of splendid executive talents, authors of genius, are nothing more or less than walking pathological specimens. There is not one brain worker in a hundred who knows the real pleasure of living. Many withdraw themselves from the fresh and pure air, rarely touched by the health-giving beams of a rejuvenating sun, and their lives are more than cruel to their muscular system and the system at large. If it were possible to sum up the misery, the injudicious acts, the danger and the bad mental product produced by this life of injudicious use in the controllers of this world, certain it is that more attention would be paid to the normal mode of life. He who could tell these truths in strongest terms and in such forcible language as would compel attention and induce the rulers of men to shun the vice of excessive brain use to the exclusion of muscular use, would not only be a benefactor but almost a savior of man. It would be much better if offices were less luxuriously furnished. If there could be attached side by side to every office a gymnasium where the muscular system could be exercised with the same earnestness as is given to the mental part, great benefit would accrue, not only to the individual but to the world at large.

The life of such a man as Gladstone, who has shown what judicious use can do, ought to be a constant reminder to all mental workers of the virtue of muscular and mental use combined. Should a law be devised which would compel each and every mental worker to exercise his muscular system in the same measure and proportion as he exercises his mental part, it would carry infinitely more blessing than laws which are devised against many of the so-called vices of man. If such a law as this were enacted and could be enforced, more benefit would go down to the world

than from almost any law which could be devised. If the thousands of temperance orators, who speak with force and eloquence, would take for their theme the desirability of judicious muscular exercise, they would rob intemperance of many of its serious and most constant dangers.

Without proper and judicious use of every organ, the best product of life is not possible. The healthful product established by proper brain and muscular use would make the world immeasurably better, give healthier thought, broader function, a kinder and more just manifestation of mentality. Use has almost changed the stamp of nature in many men under the modern mode of living. He that seeks for fame, let him start in and study the existing form of life and show to the world the full force of exaggerated and improper function and the full force of judicious use of every organ and part of man.—*Railway Surgeon.*

Sanitation of Flooded Regions.

A disaster somewhat similar to that of Johnstown, Pa., occurred this spring at Bouzy, in the Department of Vosges, France. A dam of masonry, 500 metres long, 22 high and 20 wide, forming a reservoir containing 7,000,000 cubic metres of water, suddenly gave way and flooded the valley of the Avière for a distance of 20 kilometres, overturning houses, uprooting trees, and carrying away the inhabitants and domestic animals. When the waters subsided there was left on the land, besides ooze charged with organic matter, *débris* of all sorts, cadavers, and masses of slime and vegetable detritus. These deposits rapidly gave off disagreeable odors, and the survivors feared an epidemic. The General Hygienic Council of the department, acting under the supervision of the French Consulting Committee on Hygiene, took measures to prevent this. The cadavers of animals were buried in deep trenches after being covered with quicklime; *débris* of all sorts was collected in heaps, sprinkled with sulphur, and buried. The trees clogging up the river-bed were removed and the stagnant water led off into trenches. The wells were condemned for the time being. Dwelling in the inundated houses, filled with slime, was forbidden. The walls were scraped, washed, and calcimined, the floors washed and the furniture and hangings disinfected.—*Journal of American Medical Association.*

Bathing in Paris.

Mouth waters are worth recommending. Aside from their agreeable odors and the sweet taste they put in the mouth, they have hygienic properties that give them dental value. There are orchid, orange, clove, winter-green, lemon, vanilla, and attar scents. The lotions are strong, and a few drops in a tumbler of water will, as the French say, fumigate the whole inside mouth. Paris is dotted with bathing establishments. They belong to men, but are conducted by their wives and daughters. These bathing mistresses are fair pharmacists, and between tubs and the laundry they spend their time preparing toilet waters. They have materials always on hand for meal baths, starch baths, flour baths, sea baths, and medicated baths. What they are pleased to call a delicious bath has as many ingredients as a Christmas pudding, barring the plums, in lieu of which lavender buds are used. The tub is lined with a linen sheet. It has a hole in the middle and is gored to fit the tub. The bath bag usually contains almond meal or oatmeal with orris root. At least a dozen bottles contribute a drachm or an ounce of mysterious stuff. The tub is filled within a hand of the edge; the patroness gets in and stays there until she is scented through and through. There is no drying after this. Each bath-room contains a lounge. Over the tub is a bell-pull. When the bather rings, a maid comes in with two peignoirs,—a linen one for absorption and a woollen robe for warmth.

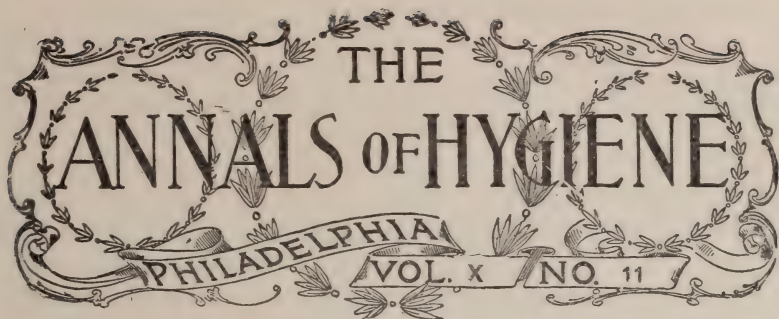
If the bather does not want her nails "fixed," her eyebrows pinched, or her hair dressed, she takes a nap and sleeps herself dry and beautiful. Massage can be had everywhere, and operators experiment with everything but pitch for beautifying the body; milk, butter, tea leaves, chalk, Epsom salts, bread crumbs, crushed flowers, oils, and spirits in variety, and soap and honey are some of the toilet accessories used. Prices range from 12 cents to \$1.50, varying with the location and character of the establishment. In the leading establishments there are gymnasiums perfectly equipped, a pool, a restaurant with concert music, and separate parlors for professional work. The guest has the freedom of the gymnasium and bath; afterwards she can order a pot of tea, a course dinner, or have her hair bleached a golden ed, provided she has 500 francs at hand.—*Philadelphia Press*.



NEW PAVILION HOSPITAL—MUNICIPAL HOSPITAL.



EAST WING OF NEW PAVILION HOSPITAL.



COMMUNICATIONS.

The Official Management of Dangerous Communicable Diseases, with Special Reference to the Provision of Hospitals for the Isolation and Treatment of these Diseases.

BY WILLIAM H. FORD, M.D.,

President of the Philadelphia Board of Health.

COINCIDENT with the advancement of higher civilization there is an increased appreciation of the value of human life. Not only is the individual taught the duty and means of preserving health and his obligations on this wise to the community, but the State assumes the direction of measures tending to conserve the health of its citizens by watching over the health of the individual. The death-rate of a community, particularly the death-rate from preventable diseases, reflects the quality of its sanitary government, and is looked upon as an indication of the degree of advancement a people may have attained in comprehending and applying those great principles of self-government which aim to lessen suffering, conserve health, and thereby tend to prolong human life.

Man must live for others as well as for himself, and it is his duty to contribute his share of co-operation for the public weal. Selfishness and personal liberty and preferment, when they become antagonistic and injurious to public interests, must give way to public aid and co-operation, or submit to reasonable abridgment, in order that the greatest good may inure to the

greatest number. Personal liberty may be enjoyed to the fullest extent when that liberty is exercised in right doing ; but it must be retrenched when used in contempt of right and law.

Civil laws made for the regulation, preservation, and advancement of society are beneficial to the individual and to the public through individual compliance and co-operation, and oppressive only as a consequence of their resistance and infraction. The aim of sanitary law is beneficent. It instructs, commands, and forbids. Its observance tends to prevent disease, reduce sickness, and lessen suffering, and thus adds to the robustness of a people, to their strength, activity, and prosperity. Its violation tends not only to inflict injury upon the individual, but also upon the community at large. Hence, the necessity for its stringent administration. A healthy people are, as a rule, the dominating, progressive, civilized people ; and conversely a sickly and enervated people lose their power, sway, and leadership, and cease to progress. The law of the survival of the fittest has no better exemplification.

The noblest work of this era is that which pertains to the prevention of disease, and the wisdom and knowledge of the greatest minds are being taxed to consummate this humane object. One of the best evidences of the activity, zeal, and determination to control, restrict, and prevent disease which is propagated from person to person, from people to people, and from country to country, is the frequent assembling of representative international congresses, held to promote this great object. A magnificent exemplification of the grand results of intelligent and concerted action directed for this object is seen in the successful barring out of cholera from our shores in the seasons of 1892 and 1893.

But the foundation principle of success lies, after all, in the acknowledgment, appreciation, and performance by communities of their duties and obligations in maintaining the highest standard of local health by all of the vast array of means that modern knowledge has placed at their disposal. Such recognition of duty and enforcement of its behests is the secret of success in preventing the origin and spread of epidemic diseases, which may not only afflict their own citizens, but be propagated and spread from hamlet to hamlet, from State to State, and from country to country. It may be narrowed down still further by placing the responsibility upon the family and even upon the individual. As a well-known author has tritely said, " If the personal agency

in the prevention of disease could be made perfect, all else would sink into mere nominal position, or would, at least, consist of mere formal administrative labor."

But such universal faultlessness in the performance of duty has not been attained, and hence, the necessity of local and central administrative labor for the enforcement of measures of self-defence against internal and external harmful agencies, such as are directed against all dangerous communicable diseases of that form which tends to become epidemic. The people must be coerced if they will not be persuaded and educated into compliance with health-protective measures.

While the general health of the community indicates the quality of its sanitary laws and the degree of efficiency of their administration, the death-rate from the so-called preventable diseases is looked upon as a more reliable reflex of these important characteristics of local government, and for this reason, these diseases, being more amenable to measures of prevention, are placed under official supervision and management. The local government assumes, for the public good, the direction of measures for their restriction and suppression, and is, therefore, responsible for the results in proportion to its vested authority and means.

In order to meet this great responsibility there must be careful and explicit instruction of the public in their individual duties, and insistence on their performance and on the rigid performance of duties by administrative officers, assisted by all means of co-operation and the appliances necessary to aid the individual and to supply his needs as well as those of the public.

The early recognition and prompt notification of all cases of contagious and infectious disease is of paramount importance, in order that these cases shall be placed at once under official supervision. The proper care, nursing, and treatment of the patient must be insisted upon for the individual's sake and for the protection of the public. These comprehend in general what is required to be done.

Most important among these requirements, so far as the public health is concerned, are isolation, disinfection, and, in the case of variola and diphtheria, vaccination and inoculation. The exceeding importance of these measures must be taught the people, and, in addition, the government must be prepared to act when there is personal failure to comprehend and apply such essential meas-

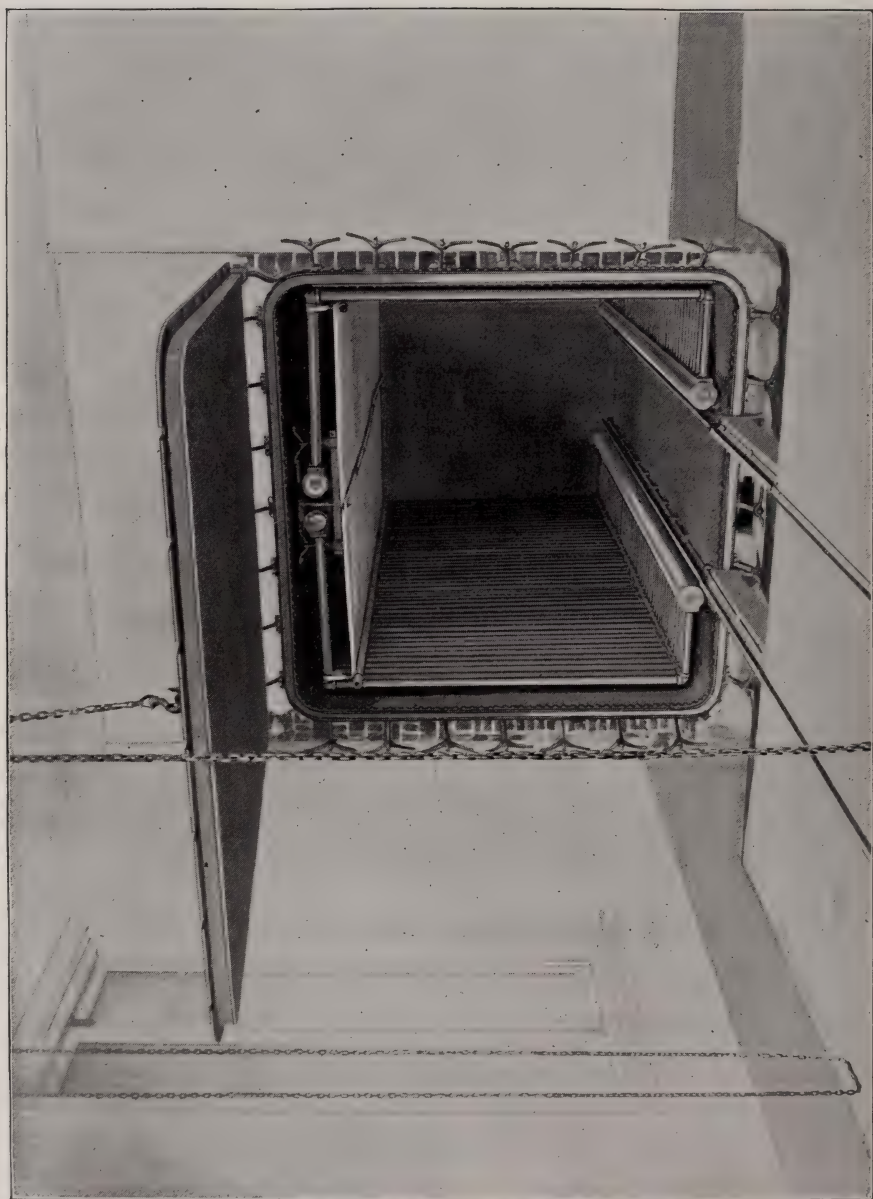
ures. While a part of the community can be relied upon to faithfully and intelligently co-operate in the performance of these duties, there is a portion that uniformly fails to comprehend their importance, and hence, the authorities must supplement the deficiency by undertaking to conduct this work themselves. Vaccination should be insisted upon, better in advance than at the time of an outbreak, and thus prevent the outbreak. A compulsory law is humanitarian. In its absence, the imposition of disabilities works to advantage.

Disinfection in the private home is apt to be insufficiently performed, for the reason that the proper appliances do not exist for satisfactorily conducting this work. Hence, the necessity for the authorities to supply disinfecting plants for the use of the public, and to insist upon their use whenever there is a suspicion of failure on the part of the people to efficiently conduct this procedure themselves; and also to conduct the work of house-disinfection by trained officials.

It is not always possible to isolate cases of dangerous communicable diseases in the private home, and for this reason it becomes obligatory on the part of the authorities to provide hospitals for the treatment of the sick as, under the circumstances, it is advisable and justifiable to remove them from their homes for isolation and treatment. No community, however small, should be without the means of providing for the public care and treatment of cases of contagious and infectious diseases, for it constantly occurs that, for the want of such facilities, disease is propagated from person to person, and from family to family, thus often giving rise to an epidemic which might have been prevented by the exercise of ordinary foresight. And these hospitals, no matter how unpretentious in size, should be well located, complete in their construction and appointment, and thoroughly well adapted for the comfortable and satisfactory care and treatment of the sick. It is too often the case that such institutions are mere makeshifts for an emergency, incomplete, uncomfortable, and foreboding-looking structures, badly located and not too well managed and appointed, and unsuitable in every way for the object in view. No wonder that the dread of removal to such places causes opposition and resort to every means to thwart the sanitary officer. When the government interferes and compels removal from the private home, it assumes the obligation of guarding carefully the patient's health and of providing every



INTERIOR OF A WARD—Pavilion Hospital.



INTERIOR OF DISINFECTING CHAMBER.

reasonable accommodation for his comfort and care. This being done, the opposition to removal in most cases ceases to exist.

Such hospitals must not be too distantly located, and the means of conveyance of patients must be safe and comfortable.

It is impossible to treat different contagious and infectious diseases under the same roof without the risk of intercommunication of disease ; and hence, the necessity of providing a separate building for each distinct disease. In small towns, where more than one of these diseases is rarely treated in hospital at the same time, a single building may answer the purpose, except in special emergencies. Small portable hospitals can be procured at short notice, and they are really better than large ones, being less expensive in original cost and in their management, and, what is more important, less likely to spread infection by concentration of the sick. In large communities it is rarely the case that more than four diseases of the class under consideration are treated in hospital at the same time, so that four separate buildings are all that are required for ordinary demands.

Various forms of buildings have been recommended from time to time, each having its special features and advantages. One of the simplest forms is the one-story wooden pavilion with wards for sick and convalescent patients, duplicated for the sexes, and with administration annex. It is not our purpose to discuss hospital construction, but to illustrate a form of construction which has many advantages and which by a full description may be of service to those who are seeking information on the subject.

The so-called Municipal Hospital for Contagious Diseases is the institution in Philadelphia to which contagious and infectious diseases of the dangerous class are sent by the Board of Health. These diseases are not treated in any general or private hospital. The buildings are centrally located, about three miles from the City Hall. The grounds contain about ten acres. On this plot are located a large two-story stone hospital building, in the centre of which is the administration section, three stories in height. The accommodation is for 200 patients. There is a separate building for lepers, and also one for small-pox cases. The necessity for other buildings has existed for a long time, but there has always been a difficulty in obtaining the necessary appropriation for this purpose ; and, moreover, opposition to the hospital by the neighboring property owners has had its influence in thwarting plans for improvements. There are also other necessary buildings, disinfecting plants, and appurtenances.

There has been a strong desire to improve the accommodations at the Municipal Hospital, not so much with regard to capacity as the need of separating various diseases treated there in buildings as distant from one and another as the extent of the grounds would permit, and of providing an adequate number of private rooms to meet a present and increasing demand. Several years ago plans were prepared to carry out this view, but failed for want of the necessary funds.

The threatened invasion of Asiatic cholera in 1892 and 1893 revived this subject once more, and as the means were provided for use in warding off this disease and in making preparations to cope with it should it unfortunately appear in the city, the opportunity was made use of for erecting an additional hospital building to meet a possible demand for the treatment of this disease, and with the view of ultimately affording a place for the treatment of some one of the contagious diseases which are constantly present in a large city. A wooden pavilion hospital, one story in height, with an annex for cooking, washing, heating, and other purposes, was selected as the style of building best adapted for the purpose. Accordingly, an architect was employed to make the plans and specifications for such a structure under the direction of the writer, as chairman of the Sanitary Committee.

A plot of four acres adjoining the Municipal Hospital was selected as the site, and the building was commenced early in 1893 and completed in the fall of the same year. Should cholera have appeared in the summer, it would have been possible to have had the building sufficiently advanced for use at short notice.

If this disease should have broken out in considerable proportions, not only this hospital, but the general hospital would have been utilized to the exclusion, for the time being, of other patients, so that the entire accommodation for the emergency would have amounted to 300 beds. Fortunately, no cases of cholera occurred in the city, and when all probability of an outbreak had passed, the building, thoroughly completed and furnished, was set apart for the treatment of cases of diphtheria, which constantly prevails in the community, and which, by the better means of isolation and treatment now afforded, will, it is hoped, be better managed than ever before.

The new structure is complete in itself and can be used without reference to the main building. Cooking and washing are

done in the small annex. The heating apparatus is also there located. Not only are the patients isolated, but the nurses and other employes are provided with accommodations, so that isolation in the strictest sense of this term can now be made possible.

A number of rooms for private patients have been provided, where they can be as comfortable as in their own homes, and, indeed, even more so in most cases, and receive the best of treatment and care. This will be a great advantage to the community, for it often happens that people sicken in boarding-houses or in hotels where no accommodations for treatment exist; and, indeed, it is often desirable among the better class of people to remove the sick ones from their homes to an institution. The facilities for the treatment of such cases in a limited number in private apartments will meet a want which has long been felt.

A brief account of the plan and prominent features, the capacity, cost, etc., of this building may be of service.

The pavilion is a frame building one story high, elevated above the ground and supported on piers, between which double sash are fitted for light and air and to exclude cold, when necessary. There are four large wards, each 37 feet by 24 feet, two on either side of the centre, and ten rooms, several of which are for the use of private patients. There are the necessary attendants' rooms, lavatories, water-closets, etc. The medium capacity of the building is fifty-four beds, allowing plenty of air-space.

The building is 236 feet long, and varies in width from 24 to 35 feet, and the height to the ceiling is 13 feet. It is heated throughout by the fan-system of heating, the apparatus for generating and propelling heated fresh air being located in an adjoining building. The plumbing is all done according to the latest and most approved sanitary system.

Each ward has a separate and distinct water-closet and a bathroom, each 10 feet 6 inches by 13 feet, which are disconnected from the adjoining wards by a space well ventilated. The lavatories and water-closets are lined throughout with impervious material, and no cracks or crevices are left to receive dust or matter of any sort. An abundance of heat and air is readily obtained. The floors of the wards are of double thickness, the upper layer being of inch and a half yellow pine boards, tongued and grooved, and all crevices filled in and the surface coated with impervious dressing and shellac. The corners of the rooms are rounded.

Ventilation is secured by the introduction of fresh air under pressure and heated when necessary, and the foul air is expelled through openings connected with flues which have outlets through the roof. There are also numerous windows in ventilating towers, which can be opened and closed at will.

Two private rooms, each 12 feet by 12 feet, are located at each end of the building, and two (each 15 feet by 12 feet) at the front of the building on each side of the porch. There are also two private rooms, each 12 feet by 10 feet, having no communication with the wards.

In the rear of the centre of the building, connected with it by an open porch, which can be closed in severe weather, is a two-story building with cellars. One cellar contains the boiler, engine, radiators, and fan; the other is set apart for the storage of supplies and the general use of the kitchen. The steam laundry apparatus, the ironing-room, the kitchen, and the dining-room are located on the first floor. The rooms on the second floor are for the accommodation of employés. The outlet for drainage is a neighboring sewer.

The water-supply is derived from the city main. The building is illuminated with gas and the grounds by electric lights. Every precaution is taken to prevent fire. Fire-hose and water-buckets are kept in readiness at all times, and the most approved fire-extinguishers are placed in convenient places for instant use.

The building is furnished throughout with polished oak furniture; the beds are of iron of the most approved pattern; no rugs, carpets, or curtains are used. The dressings of the beds are of white, for obvious reasons. Each ward is provided with a set of utensils kept thoroughly clean and ready in a shelved case for instant use.

The nurses' rooms adjoin the wards and have windows in them to give an oversight of the wards. The physician's office and dispensary is in the central part of the building, and is connected with the office in the main building by telephone. Food, dishes, etc., are carried in and out of the wards upon a set of polished wooden trays on cast-iron rollers three and a half inches in diameter, provided with rubber tires. Agate-ware receptacles with covers receive the soiled rags and small cloths, which are regularly cremated. Soiled clothing is placed in heavy cotton bags, and after being removed is plunged into boiling water before being washed. Bedding, clothing, etc., are treated in the same



MAIN BUILDING, MUNICIPAL HOSPITAL.



MUNICIPAL HOSPITAL AMBULANCE.

way. The steam laundry is in constant use, so that no soiled articles may be suffered to remain in the apartments. Such articles as require disinfection by steam are sent immediately to the disinfecting chamber on the grounds. A vapor-room has not been provided, as intubation is preferred to tracheotomy on account of the better results obtained. Such a room could be easily fitted up if the medical staff desired it.

The walls are plastered smooth, and can be carbolated and lime-washed, or only carbolated, as the occasion may require. It is a custom always practised to vacate a ward after a time in order to purify it thoroughly before it is again occupied. This prevents the concentration of poison. The clothing of patients, immediately after their admission, is disinfected, washed, and tagged, and kept in a separate apartment until needed. No infected or soiled clothing is permitted to remain about the building. Private patients can have their family physician visit them in consultation with the physician-in-charge, and can be provided with a special nurse at their own expense.

The building is located, as has been stated, on a plot of four acres, and has access of light and air on all sides, and a pleasant outlook upon a neat lawn. It is light, thoroughly ventilated, thoroughly heated, and supplied with all necessary appurtenances, and conveniently fitted up for its special object. Special care has been taken to use only those materials which are least liable to absorb infectious matter, and no superfluous or unsuitable furniture or articles of any kind have been permitted in the building.

A pavilion similar to the one above described should be constructed at once on the grounds adjoining for cases of small-pox, the new portable building, with capacity for only twelve patients, being at times inadequate for the accommodation of patients suffering from this disease. The commission appointed to select a site or sites for a Municipal Hospital has reported in favor of the present grounds and the erection of additional buildings. In lieu thereof two other sites have been selected, one in the northeastern part of the city and the other in the southwestern part, on which it is proposed to construct the necessary buildings. One or the other plan should be adopted without delay, so as to afford the most ample facilities for the care and treatment in the best possible manner of persons suffering from contagious or infectious diseases. Complete hospital facilities and accommodations will do much to overcome the objection to removal to such an institu-

tion, and thereby lessen the spread of these diseases by bringing about a more general isolation of the sick than has hitherto been possible.

As supplementing these remarks, I wish to refer more in detail to a branch of the subject which is worthy of particular consideration,—namely, the advisability of providing hospitals for the isolation and treatment of persons suffering from contagious or infectious diseases, who, on account of their peculiar environment, are obliged to leave their abodes, but who demand and are able and willing to pay for private accommodations.

There is need of increased special hospital accommodation for just this class of patients,—persons who have a competency that insures the comforts and conveniences of life, and who are accustomed to the privacy and refinement of home. And this demand will continue to increase from year to year on account of the popularity of residence in large apartment houses, boarding-houses, and hotels.

Under the law, and with propriety, it is not permissible for persons suffering from dangerous communicable diseases to be treated in such public residences, and unless rooms are available in hospitals for their care and treatment, they are obliged to use the wards in common with others. This is an unnecessary hardship; for there is no reason why persons removed from their homes against their will, or even with their consent, should not be provided with such private accommodations as may be obtained in any general hospital, if they so select and can pay for them.

Apart from the question of the choice of such patients for accommodations similar to those to which they have always been accustomed, and the personal advantages to be derived from having this choice gratified, there are often benefits to be secured by separating certain cases from the mass of patients in a ward, and such accommodations should be at the disposal of the sick.

At present the provision in this city for the isolation and treatment of patients in private hospital apartments is very limited, and is made only at the Municipal Hospital for Contagious Diseases. Years ago it was quite a common thing to treat contagious diseases in the general hospitals of the city. Cases of scarlet fever, diphtheria, typhus fever, and even cholera and yellow fever were thus provided for. But this practice has entirely changed, and with the greatest propriety. Now none of the general hospitals receive this class of diseases, the Municipal

Hospital being the only institution in the city where such diseases can be treated outside of the private home. Recognizing this fact, and being impressed with the necessity of meeting a public demand, not only for the benefit of the individual sufferer, but also for the advantages which isolation affords the public, the Board of Health propose various additions and improvements at the Municipal Hospital for the more satisfactory isolation of a class of diseases, and for the provision of an adequate number of private apartments for pay patients; provided the hospital remains where it is, and additional ground for the needed extension, which is available on the southern border of the present site, be procured.

Accommodations have already been secured for cases of diphtheria, not only in wards, but in private rooms, which, if not sufficient in number, can be added to without much expense. It is proposed to erect a hospital somewhat similar to the new Pavilion Hospital on a neighboring site, for the treatment of small-pox in wards and in private rooms, a sufficient number of the latter being provided to meet ordinary emergencies. It is also a part of this plan to reconstruct the main building by adding a number of comfortable rooms for the treatment of scarlet fever in one wing, and for mixed diseases in the other. Improvements in the bath-rooms, water-closets, nurses' rooms, culinary and laundry departments, etc., and also in the method of heating and ventilation, are in contemplation. A part of the projected plan is the construction of a heat- and power-house for supplying the different buildings, and also for furnishing fresh air to the different wards. A third pavilion is projected for use in any sudden emergency. It is unnecessary to go into details, the fact of importance is that ample provision ought to be made, and is contemplated for meeting the demands of the present and of the immediate future. If the alternative of new sites for hospitals is adopted, provision for embodying the above features in the plans of construction will be insisted upon.

In lieu of the project which has just been mentioned, it may be suggested that sufficient funds be raised to construct special hospital buildings for the exclusive treatment in private rooms of patients suffering from the different contagious diseases, who desire such special accommodations and who are able and willing to pay for such privileges. Such an institution might be managed jointly by a board of trustees representing the subscribers and the Board of Health, the latter being included for the reason that

under the law the supervision of contagious diseases in this city is placed, and properly too, in the hands of the Board of Health, and cannot be otherwise, for reasons that are clearly apparent. Such an institution might be self-sustaining, but if not, it would be to the advantage of the city to supplement any deficiency by an appropriation made in the usual way. There can be no objection to a plan of this sort, and indeed, if it could be carried out and managed in such a manner as to furnish all the comforts and the privacy of home, there can be no doubt that it would be a great relief to a class of citizens who live in public houses, and who, when taken sick with any of the diseases we have under consideration, would be obliged to be removed from their homes with no other resort but the Municipal Hospital.

One or the other of these plans should be adopted and carried into effect without delay. This is in the line of progress. It may be remarked that the defect of inadequate provision for the class of patients we are considering is not confined to this city; it exists generally in cities throughout the country. It is only recently that this subject has attracted marked attention. At the present time an effort is being made in New York City to supply a similar deficiency, and private subscriptions have been tendered to start the enterprise. Whatever is done must be done in concert with the Board of Health and under its authority, as no other body can possibly be vested with power to remove patients from their homes and direct the management of contagious diseases. But this is no obstacle to the consummation of the proposed enterprise. As the first plan is the least expensive and decidedly the most feasible, City Councils should be urged to provide liberally for the acquisition of additional grounds at the present site for the construction of new buildings, and also for the reconstruction of the present buildings in order to provide for the pressing needs of the community; or, if other sites are selected, for the prompt provision of the best possible means of adequately caring for all classes of people suffering from contagious diseases. Money legitimately spent for the preservation of the public health is the best possible investment a community can make. Epidemics are not only disastrous to life and attended with immeasurable suffering, but inflict oppressive financial burdens upon a community. Their prevention is incalculable gain. There is wisdom in the adage, "An ounce of prevention is worth a pound of cure."

The Vital and Mental Characteristics of Man.¹

BY A. G. HUMPHREY, M.D.

"Know then thyself, presume not God to scan,
The proper study of mankind is man."—POPE.



MAN stands at the head of physical beings, the most complex, delicate, and wonderfully intricate living mechanism of all. He, like all forms below him, is under immutable law. If he lives in right relation to the physical laws he will enjoy physical health, happiness, and longevity; while, if he is in false relation to these laws, sickness and premature death are his sure lot.

Organic bodies exist in certain relation to all the ponderable and imponderable forces in nature. The vital force of organic bodies is separate and distinct from all other forces. The lower natural forces, as gravity, cohesion, elasticity, heat, light, electricity, magnetism, chemical affinity, mechanical force, and all other powers which operate both on masses and atoms, must exist before the vital force. Hence the very existence of organic forms may depend on the conditions which all these varied forces comprise. If we understand the separate and correlated action of the known forces in nature, we will arrive at a clearer comprehension of the vital force and be able to trace its action in the health, disease, and mental manifestations of all animal forms.

In studying the organic history of the earth from palæontological data, we find the first forms of plants and animals very simple. During the primordial epoch the algæ, or tangle, forests (the lowest of vegetables), and polypi or Arcania (the lowest forms of animals) filled the primæval sea with these simple forms of life.

The primary epoch clothes the earth with fern forests and fills the seas with fishes. During the secondary epoch pine forests and reptiles appear. The tertiary epoch develops the leaf forests and mammals. And, finally, in the quarternary epoch we reach the era of man and cultivated forests.

Geology, chemistry, molecular and mechanical action, in fact, all the natural sciences, aid in explaining the modes of the

¹ A paper read before the Natural Science Club of Knox College, Galesburg, Ill.

changes during the formative ages of the earth. And now the earth, with all its teeming life of vegetable and animal forms, exists and is perpetuated under undeviating inorganic and organic laws.

All observable phenomena are alike subject to law. The terrible and devastating tornado, the gentle showers, the thundering cataract, the placid cascade, the cold blasts of winter, and the balmy days of summer, all exist and occur in obedience to gravitation and electrical and climatic changes. The meteorologist can now, by careful observation of meteorological phenomena and noting changes in his barometer, decide the quality of a storm and its extent several hours in advance of its appearance.

INORGANIC AND ORGANIC FORMS.

Heat, light, electricity, magnetism, chemical affinity, and mechanical force are transmutable into each other back and forth. The mutual convertibility of forces into each other is called "correlation of forces;" and the persistence of the same amount, amid all these protean forms, is called, "conservation of forces." The elementary forms of matter unite by chemical affinity and form chemical compounds, and constitute the mineral kingdom. By the action of some force, mineral matter is raised into vegetable structure, and by a similar force vegetable products are raised into animal organisms. We assume the hypothesis that this force is a homogeneous and distinct power, so not correlated with other forces. The play of the forces in the inorganic world is independent of the vital force; but while the vital force is dependent on the conditions secured by physical forces, the phenomena of vital action are different and distinct from any other force.

From this data it is apparent that organic bodies are not chemical laboratories. All organic bodies are built up and sustained and secure their distinct structural arrangement by the processes of nutrition and assimilation which we shall show are purely vital. Inorganic bodies have assumed their atomic and molecular arrangement by chemical force.

The science of chemistry in connection with geological research unfolds the vast field of phenomena connected with the inorganic world. Botany investigates those laws by which the vegetable life-force breaks up inorganic compounds and elaborates from these materials the varied vegetable organisms that beautify and adorn the surface of the earth. Physiology investigates all

the phenomena connected with animal life. Its province is to explain the wonderful process of the vital force in elaborating out of vegetable structure the distinct parts of all animal organisms.

The conception, birth, growth, maturity, health, disease, decay, and death of every animal being is shown to be under undeviating and unchanging law.

By chemical analysis we can decide what elements remain of an organic body after vitality ceases. We can chemically examine the contents of all cavities in an animal body, but no vitalized particle of matter can be reached by chemical analysis. The instant that a particle of vitalized animal matter is subjected to chemical action its vital relation is destroyed. It is then subject to any or all of the lower forces in nature. So we arrive at the conclusion *a priori* that vitality *per se* accounts for all phenomena of life.

It now remains to inquire what is mind and what is its relation to the physical organism. To facilitate this inquiry, we may raise the question, whether there is such a phenomena as mental disease.

There is no class of disease conditions more seriously affecting the public health than that classed as nervous. The individual, the family, society, and the state are made to suffer. A sound and well-balanced mind is more to be desired than the good health of the body. Indeed, no greater calamity can come to any human being than insanity. The crowded condition of our asylums all over the country, and the great expense in constructing and maintaining them by the State, is an evidence of this wide-spread calamity.

It may be a question whether, in fact, there is such a phenomena as mental disease. If mind is an immaterial, separable, spiritual being, capable of existing after the dissolution of the body, can this immaterial Ego become diseased? Neither physiology, as taught in our schools, nor has biology fully solved the relation of mind and body. It is a question whether consciousness is an inherent quality of matter manifested, as all other qualities are, by motion, or an attribute of a supernatural indwelling spiritual being, not subject to a sensuous observation, but inspiring or instigating all our bodily activities. Whether mental manifestations as a part or as a whole are concomitants of brain activities instigated by an immaterial Ego, or whether they are the inevitable sequentials of ever-changing conditions of brain-substance

influenced by environment is undecided. Physiology cannot tell just what the brain or body or spirit does when a man feels, thinks, or acts in any way, nor what instigates his activities, determines his movements, and differentiates his capabilities. It has been a question in speculative science whether organization is the result of mind or whether organization precedes every and all manifestations of mind.

That the inorganic and organic world have reached their present conditions through a process of evolution is now generally accepted by scientific men. If this hypothesis is true, it is not philosophical to assume that mind is a separate existence, and forms no part of the natural world into which it is introduced to remain only during the life of an organism. But it would logically follow that the organism, both in its biological and psychological aspect, is a product of evolution; that mind is not extra-natural nor supernatural, but one of the manifestations of natural existence. Body and mind, then, are distinguishable as an organism and its manifestations, but not separable. Biology teaches that the body is made up of an aggregation of cells. These cells are arranged into systems, as the osseous, muscular, digestive, nervous, etc., each dependently related to the other, and all united constitute a single, but highly complex, organism. Each of these systems has its specific function in the animal economy. Mental science ascribes to the nervous system, including the brain, the functions of sensation, emotion, consciousness, memory, imagination, and thought. In short, that the action of the brain and nerves in relation to an objective world gives rise to all mental phenomena. This hypothesis seems most reasonable, as we observe that the mental manifestations of the child correspond to physical development from infancy to manhood. It solves the problem of education giving the physical basis of culture, showing that just in proportion as we increase the strength, size, and power of the brain will mental manifestations have greater power and scope. It also furnishes the key to a knowledge of all so-called mental diseases that so seriously afflict mankind.

Metaphysics, as taught by Christian scientists, asserts that the mind or soul of man is a spark of the divine essence, hence immaterial. That the body is a mere shadow of the real substantial immaterial Ego. Therefore there can be no such things as "sin, sickness, and death." From the hypothesis assumed, the reasoning and conclusions are both logical and correct.

The science of phrenology teaches that the brain is the organ of the mind ; that the brain is a plurality of organs, and each organ has a specific function of mental manifestation ; that the organs of like functions are arranged in groups and manifest the social, intellectual, and moral faculties, and so of all mental manifestations. It is also assumed by eminent mental philosophers that sensation, consciousness, feeling, emotion, hope, expectation, desire, will, memory, moral sense,—in short, that there is no mental manifestations of any kind without a brain.

Man possesses a body divided into many parts, each part having a specific function. The brain being a plurality of organs, the mind a plurality of faculties, man as a whole is considered as an animal, social, moral, and intellectual being. If there is a serious disturbance of the normal function of any part of the physical organism, we have the phenomena of some form of disease. So, if there is a deviation from the normal function of any faculty or group of faculties of the mind, the physical organ or group of organs must be either diseased or injured.

This would constitute partial insanity or monomania. While if from a terrible shock all the mental manifestations are suppressed or become spasmodic or incoherent we have a case of general and perhaps confirmed insanity. It has been often noticed that a group of muscles have been made to contract so violently under great excitement and strong stimulation as to remain for a time quite paralyzed, and manifest, when recovering, various degrees of impairment. So, too, brain-structure may be injured and perhaps ruined by their own intense activities. By keeping in mind the hypothesis that the brain is the organ of the mind, it will readily be observed that causes which injure the brain correspondingly disarrange the mental manifestations. The immaterialist may shudder at the suggestion, that brains think ; matter imagines, convolutions reason, etc. It is no more incredible, nor is it a more wonderful phenomena in nature, that brain-matter should become sensitive, conscious, self-conscious, and capable of thinking than that matter of any kind should become brains,—by virtue of inherent qualities and the influence of environments.

Dr. Everts says, " Are the brain functions of retaining presentations, memory, reproducing presentations in the order of their reception, remembering, or in variation of order combining parts of various presentations in new relations, imagining, or even the

more complex function of reasoning, all of which represent but different states or degrees of complexity of consciousness, more wonderful or incredible than are the correlative and necessarily antecedent brain functions of feeling, seeing, hearing, tasting, smelling, etc. ? Is it more difficult to comprehend the apparent fact that matter under certain conditions is capable of perceiving light than that matter under certain other always necessary conditions becomes capable of manifesting light ?

If in studying living material beings we find that certain conformation of form and parts give rise to certain capabilities and powers, why try to ascribe capabilities and powers to imaginary beings, the functions of whom we can learn nothing by rational methods.

Man in his early, simple state enjoyed a strong, robust, and enduring physical organization, and his mental manifestations, although of a low order, were correspondingly sound. But since he has attained a high state of civilization, the brain and nervous system becoming more and more differentiated and complex, hence more liable to become impaired, in its functions, morbid mental manifestations have become more common. The powers of resistance must keep pace with the swift-developing changes of modern civilization, or the various forms of mental impairment will certainly be the result. It may be a question whether there are more insane persons and more cranks now than in former times, according to the number of the world's inhabitants. But I think it will be generally admitted that there are now more predisposing causes to mental impairment than formerly.

First and among the most potent of these causes is the general use of alcoholic beverages and narcotics. The demon alcohol, like a pestilence, has invaded tens of thousands of households in every land. Greedy and insatiable, feeding with increasing appetite, like a fabled dragon, upon all that is estimable in man's nature, and giving birth to all manner of kindred, but varying vices. It is no wonder that there should be marked and wild manifestations of mind from a brain inflamed by alcohol or stupefied with tobacco.

Another cause of mental disease in our present civilization is overwork. This is a fast age and we are a greedy people. Our most active business men rush along without regard to means, or consequences, straining every fibre of brain and nerve in pursuit of money. Our women are worn out with the eternal rounds of

drudgery, or by giving unreasonable devotion in their social relation to absurd fashions; and criminal violation of natural and statutory laws in their relation of wives and mothers.

Men are deteriorating, physically and mentally, because of the wilful or ignorant violation of hereditary laws, children are being dwarfed, or destroyed by thousands, through the high-pressure system of modern schools, and new-fangled notions respecting the education of youth of both sexes, and especially of our girls.

Existing forms of government causing general disorder of society in our social customs, the weaker are compelled to suffer that the strong may indulge in luxury, is a potent cause of mental injury to all classes. Many of our social organizations are the outgrowth of erroneous ideas respecting the natural equality of human beings and their rights and duties, under all circumstances, in every relation of life.

Many persons have become unbalanced in mind by being disappointed in love, loss of property or friends, grief, jealousy, or religious fervor, or allowing themselves to fret over constant fear of some imaginary impending danger.

But it is certainly true that constitutional conditions giving rise to certain peculiarities in brain-structure by heredity is the general cause of mental impairment. A defective manifestation of phenomena always implies defect of mechanism. This is true with all the functions of the body, the brain included. Anatomical defects in bodily organs give weak or diseased manifestations of their functions. So a defective brain gives rise to the phenomena of mania, melancholia, hallucination, and dementia.

This large class of persons mentally defective need that form of medical treatment that will tend to cure physical defects, and so establish the normal play of the mental faculties. All the conditions of mankind are determined by heredity, growth, and environment, so improvement must be sought in these directions. No miraculous interposition of hypothetical influences, which cannot be rationally contemplated, will ever bring health of body and soundness of mind to mankind.

When the physician and the mental philosopher recognize the fact that brains with their appendages, the nerves, are the essential organs of the mind by which all mental operations are conducted; that when man or any other animal feels, perceives, remembers, imagines, reasons, wills, or acts in any way, it is

because of material capabilities; that there is a relation of mental capabilities to size, form, and quality of brain-structure, and that certain mental phenomena are associated with certain areas of brain substances, they can easily account for the peculiar expressions of idiocy, imbecility, mania, melancholia, and dementia, as being caused by arrest of cerebral development and various modification of brain activities by environment. Preventive and remedial appliances will then be established on the basis of biological science, and man in all his mental capabilities and powers will be studied as manifestations of a physical and highly vitalized organism.

The Gold in Garbage.¹

BY DOUGLAS H. STEWART, M.D.,

New York.



THE quest of the Middle Ages was for the stone that would turn lead into gold, but the aim of the nineteenth century seems to be the transmutation of waste into wealth. As a natural consequence, the elaborate and expensive utilization works of Europe and the various processes of dealing with American garbage have been established.

Everybody believes in the gold in a dust heap, but as yet it has not materialized. In the light of practical experiment it seems quite as far from realization as the philosopher's stone,—also once an object of universal belief. There is not to my knowledge, a single public municipal system that is run at a profit in the disposal of garbage, no matter what its promises on paper or in the theoretical stage have been. Every system being subsidized,—or costing in operating expenses from 7 cents a ton upward to \$1 or more. Every practical test points directly to a loss, and the problem seems to present only one factor for solution,—viz., “how to make this loss as small as possible.” Roughly speaking, the attempts at extracting gold from garbage may be divided into four methods:

¹ Read at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May, 1895. From the Journal of the American Medical Association.

- (1) The most wasteful,—sea disposal.
- (2) The most offensive,—hog-feeding or fertilization.
- (3) The most economical to operate,—reduction.
- (4) The most sanitary and complete,—cremation.

There is still another method, proposed by an Englishman, in the *Leeds Mercury*. He seriously writes about his plan,—of domesticating crocodiles in England, in order to have them eat up the garbage and refuse thrown into the rivers. This is no more humorous than some of the schemes proposed for New York. For instance, bear in mind, the simple sanitary fact that water transportation and sea disposal of garbage are unqualifiedly stupid and wasteful, and repeated handlings are unnecessary and costly.

Our ex-mayor appointed a committee of five to investigate and report on the garbage systems of the United States and England. Let me call your attention to their report, which is quite as humorous as the crocodile hatchery and just as seriously intended.

(1) They say, "An intolerable nuisance is created at each garbage dump, from foul odors arising from the garbage, and from the winds blowing the lighter material about, and again, while towing to sea, the escape of a considerable proportion of the material to the defilement of the harbor.

(2) "Even with the most improved methods of loading, and the best character of boats, the practice of depositing the refuse at sea is reprehensible from every point of view.

(3) "We believe that this material could not be deposited at sea at a less distance than 200 miles without contaminating the Long Island beaches.

(4) "The commission was very reluctant to indorse any untried system."

You see, this is all very earnestly expressed, but here comes the humor. After condemning dumps, the commission suggests building new ones,—instead of doing away with them altogether. After condemning sea disposal, they provide for its continuance instead of its extinction. After condemning boats, they say, let us build propellers. After setting a 200-mile limit,—some of them now talk fifty miles. After expressing reluctance to indorse any untried system, they do indorse an untried experiment,—the garbage propellers invented by one of their number. In short, either the report does not bear out the facts or the facts do not bear out the findings. I do not mean to attack the committee at

all, but simply to give you an instance of how little we inconsistent islanders of Manhattan know of the scientific position of the age on the garbage problem. And you may be surprised, but I can assure you that the report of the commission was received almost without comment and quite seriously.

New York and Brooklyn still dump their ashes into the sea,—and from dock to ocean the freight is very nearly \$500,000. Occasionally the scows sink,—thus in 1893 New York alone deposited eight boats and 2557 cart-loads of refuse on the bottom of New York Bay. There was a bill introduced into the legislature calling for an appropriation for dredging out the harbor.

It seems to be the fate of cities, located on islands, to become narrow and provincial in their ideas, and when once the conceit of having the “best in the world” is fairly fixed, their commercial position is on the wane. Therefore New York and Brooklyn, to-day, have nothing to teach other cities on the garbage question, except possibly what to avoid. The English cities show us the value of reductors. Some of our own neighboring towns furnish evidence in cremation, and others are living monuments to the results of the pig-feeding and fertilizer plan; but New York and Brooklyn have the most expensive method of making carrion soup on our neighbors’ beaches.

Why there is not a perpetual injunction granted by the courts, I do not understand. The details of the garbage disposal of New York can be expressed in three words,—nuisance, failure, and waste.

We come now to the second method,—hogger and fertilization. The hogs are killed by the broken glass in household swill, and no farmer or gardener will put domestic garbage on his land more than once. It is much cheaper for him to dig a large hole back of his house and bury his own household rubbish, as it is in no sense of the word fit for a fertilizer. The popular belief is, that it is a rich and valuable manure, but ask your farmers what the average house production is worth per ton, and you will find that what everybody knows is not so in this case. The cities that have filtered their swill through hogs and cattle are praying for relief, and this method may be compared to sea disposal thus: less waste, more nuisance, and as great a failure.

It is a long step from the pig-sty to the third method,—reduction. Perhaps one of the largest and best equipped of reductors is the Southampton. This will work at a loss of 7

cents per ton, with cheap labor, great economy, and the utilization of every possible bit of rubbish. The most popular of these machines in America seems to be the Merz.

As far as odor is concerned, the Merz has not had a fair chance, because the cities operating it would insist on storing the garbage in open sheds around the plant itself. Naturally, the neighborhood had the full benefit of the putrefaction. There is no reason why the operation should not be perfectly odorless. But in deriving gold from garbage this process is a dismal failure. It requires a large sum of money to erect a plant. One large enough for New York is estimated at nearly a million and a half of dollars. The grease obtained has so little real value that in some places it does not pay to run the extractors. In Paterson, N. J., after the first Merz plant burned, the system was replaced with the extractors omitted. The St. Paul plant which was burned has never been rebuilt. I am told that the Buffalo works are run at a profit, and yet I find the city paying an annual subsidy of \$35,000. I am informed that the St. Louis plant begins to pay, and I find the city paying \$1.80 per ton for having the garbage disposed of. I find so many complaints that it is feared that the machinery, costing \$400,000, will have to be removed. The plant pays 12 per cent., according to the builders, but the stock is selling at 60. Mr. Frenzel, of ex-Mayor Gilroy's commission, estimates the profits of the utilization companies at \$2 per ton; but there is something very strange about this, because I cannot find a single municipal plant that pays. The utilization plants of Providence and Cleveland promised much, and have failed utterly.

The cremation furnaces can perform their work satisfactorily with proper manipulation. The Engle crematory at Des Moines burns 145 cubic yards and a dead horse in twenty-four hours at an estimated cost of 10 cents a yard. Those who are interested in the Merz process know that ten times, or even twenty times, this sum is not a high estimate for the work necessary to handle a ton through the various manipulations required.

Now it is evident that if we can "utilize" with as small an expenditure as cremation requires, with a minimum amount of handling, and turn it into a product which has a ready sale on the spot, thus saving the cost of transportation, then we shall go far towards obtaining the hidden wealth. To do this, we must have, first, an odorless and economical furnace,—one that has

stood the test of long and continued experience preferred. Instead of allowing the heat to escape at a great loss, convert it into steam. Tests in England show an average temperature of 1646 degrees in the garbage furnace; this is the result of actual measurement with the pyrometer. The result of burning one pound of garbage is sufficient to evaporate one pound of water. The steam produced is utilized to run machinery for various mechanical purposes, such as making card-board, etc. The English people are obliged to be very economical, and the garbage shows a much smaller amount of carbohydrates and fats than ours. Hence, it seems reasonable to take for granted that the production of steam may have a greater percentage to waste burned in this country than over there. In my search for an odorless furnace I met, among many, with the Rider, which has given satisfactory service to Allegheny and Pittsburg for about eight years. Perhaps it is the simplest and cheapest of all. A committee of investigation from Newport, R. I., had the curiosity to inquire whether the odors came out of the chimney, and one of their number, Mr. James A. Eddy, in his letter just before me, states, "I went at once to the top of the stack and tested the matter, but there was no odor, gas, or offensive smell, and I returned satisfied that the combustion was complete. We were all satisfied, and recommended the adoption of this furnace to our city."

Then, to my surprise, I found the Duquesne tannery running four acres of machinery with one of these furnaces, burning tan-bark, but, as well, offal of various kinds. Their bills were \$4000 a year for coal before putting in the furnace, and \$100 a year after. As to the ability of garbage to make steam, that has been proved, but I will just add an instance quoted from a letter from Dr. Dunn, ex-president Pittsburg Board of Health. He went to the tannery, found the boiler pressure at eighty pounds; he stopped the fuel and had charged into the furnace three tons of decayed melons, potatoes, and fruit, two tons cow manure, ten barrels cesspool matter, and two tons butcher's offal; in all about ten tons bad-smelling material. This was entirely consumed in two and one-half hours, with no reduction of power, without odor or smoke, and the gauge still registering eighty pounds. After such a test, let us take for granted that an odorless, steam-making, garbage furnace is an accomplished fact.

Now, if we can convert our garbage into power, we have something that will bring its price in large cities, everywhere and

always. Have the furnaces centrally located to decrease cost of hauling. Steam rents in New York for from \$50 to \$100 a horse-power per year. Each furnace can readily make from 200 to 250 horse-power day and night. Thus each one has an earning capacity of \$10,000 a year on a supply of 60 tons of refuse a day.

The cost of labor and fuel is easily covered by 25 cents per ton, or \$15 a day, or \$5475 a year, leaving a net earning margin of \$4000 after deducting for repairs and emergencies. Of course, all expenses would be lowered by using cinders for fuel in practical operation.

I always hesitate in giving facts and figures, because they always bring to my mind Josh Billings's keen proverb, "Nothing will lie like figures except facts," or, as one medical man put it, in a city far away, "The garbage disposal here is a political reduction method by which fibs, untruths, and plain lies are reduced to statistics."

If we are to have public disposal, I can find nothing better than the plans given before the Academy of Medicine in my address delivered two days before the report of the mayor's commission. Inventors have again and again shown to Mr. Harold P. Brown and myself working plans of steam-making garbage furnaces, the adoption of any one of which would eliminate scows and propellers, and save the city \$1000 a day in cutting off this single item of expense.

The fuel value of New York garbage is largely in excess of that in European waste. As Dr. Thomas H. Manley once said to me, "Half of Vienna could live out of New York's ash-barrels." In Austria domestic economy is a stringent necessity, hence the constant presence of the vegetable can, the stale bread tin, the grease pot, and the soup kettle in the kitchen. With our population canned soup is often bought, and the hydrocarbons go into the swill pail. Here is a desperate evil, for it is an axiom of political economy that waste makes want. Unfortunately, the law cannot step in and force thrift upon our citizens. Will domestic disposal of all garbage help us? It will help the city by doing away with the great expense of gathering and transportation, but, if the disposer is handy, will not our servants and our poor be more apt to put the drippings and grease into it, rather than take the trouble to fry out the fat for cooking purposes? Shall we not be saving the public purse at the expense of many private ones? The best way seems to be to keep the gold

out of the garbage rather than to attempt to get it out after it has been thrown in. And for this reason I should suggest that the public schools for girls give two hours each week to kitchen economics; let them teach only theory out of some good, practical, common-sense book, and you may be quite sure most of the little scholars will prove missionaries and reformers of the doctrine of thrift in the next generation, and many of them will be able to save five cents out of every dollar earned by the head of the house. Now, therefore, let us investigate the waste at its source,—the cook. It is absurd for us to tell that domestic to save albuminoids, carbohydrates, and fats, for she could not understand, but we can find out how she manages to waste them and how they can be utilized.

Albuminoid or nitrogenous: pieces of bread, cold rice, cold corn-meal, cold potato, cold beans, oatmeal, hominy, sour milk, beets, squash, cabbage, turnips, onions, peas, parsley, asparagus, carrots,—these are all “no good,” and go into the swill pail first of all.

Carbohydrates and fats: meat, poultry and fish in bits, bones, fat, drippings, and pork and sausage fat, mutton tallow, vinegar and fruit syrups, jellies, preserves,—all these are thrown away.

Consult a good cook-book and see what this means: bread can be used for puddings, for griddle cakes, for stuffing meat and fish. It can be dried and powdered, serving the same culinary purposes as cracker dust. Rice, cold corn-meal, cold potatoes, cold hominy can be made into griddle cakes, gems, and muffins. Sour milk makes dough-nuts, gingerbread, pot cheese, and griddle cakes. The green vegetables may be made into hash and into vegetable salads. Meat, poultry, fish, and bones will make soups, gravies, and many made dishes. Fat can be used for shortening bread and gingerbread. Pork fat of all kinds is useful for frying purposes. Tallow has many manifest applications. The farmers use it from head to foot,—from hair oil to boot grease,—not forgetting chapped hands and soap grease. The fruit skimmings and sweetened vinegar will take the place of wine in sauces. Jelly and preserves will make puddings and pies.

I should suggest a large printed card, hung over the range, for Bridget's information, and embodying the use of every scrap which she enjoys putting into the refuse heap, and have her live up to the directions. You will reduce your garbage to such an extent that there will be little trouble in dealing with it, the


effort to utilize it will not pay, and the burning of it will not be wasteful. But your citizens will lose the nervous, anxious worry, and be able to lay by a "little money for the rainy day." It seems much more reasonable to stop the entrance of gold into garbage than to spend much money to recover a portion of the waste.

Since writing the above, the furnace invented by Mr. A. W. Colwell has been tried in New York. This consists of a steam-making crematory, and although it has been in operation but a short time, yet both from an economical and sanitary stand-point it promises well. We cannot sell a pound of manure in this city, hence the large "paper" earnings given to this product by the "reduction" people are plainly nonsense. Garbage has fuel value only.

Extermination of Infectious and Communicable Diseases by Sanitation and Bacteriological Work.¹

BY H. P. MERRILL, M.D.,

Portland, Me.

HE subject of my paper may seem to some to be in the nature of "threshing old straw," but I make bold to assert that our own mission in this regard is not yet accomplished, and I contend that the time is now at hand when proper advantage should be taken of the facts which scientific investigations have thus far satisfactorily demonstrated, both for the individual and in the interest of public protection. I have been strengthened in the belief, more than ever, since serving as a member of the board of health for the past three years, that an early accurate diagnosis should be made not only in cases of diphtheria, but of all the dangerous, infectious, and communicable diseases. Upon this the life of the patient, the safety of the family, and the immediate neighborhood, as well as the city at large, depend. The time is now at hand, in my estimation, when there need be no doubt of a positive diagnosis

¹ From the Journal of Medicine and Science.

for a longer period than twenty-four hours between a true diphtheritic bacillus and exudate and a pseudo-membranous inflammation with an exudate non-contagious, neither communicable, nor attended with danger to any one save the patient himself. I ask the question, Has the time come in the history of the world when this should be considered a rational thought, worthy of serious contemplation? When a sentiment so lofty as this shall be raised, and around it gather physicians, sanitarians, and philanthropists fully determined upon a great struggle and animated by a reasonable confidence of ultimate success, concerning the greater number of infectious diseases, the laity will undoubtedly second their efforts, encouraged by a contemplation of modern knowledge and methods. The history of the world shows us that whole races of men and animals have become extinct. Why should not whole races of microbes become extinct? Certain diseases that once ravished the earth in epidemic form have so lost their inherent strength or have become so controlled in the latter part of the nineteenth century as to warrant the belief that their histories are closed or fast closing. The introduction of sanitation, disinfection, and quarantine, crude as they were at first, have gradually diminished great epidemics in sea-ports from which diseases were carried into the interior. They have succeeded in stamping out many of the highly infectious epidemic diseases before they have reached the ports. And what is true of the value of sanitation, quarantine, and disinfection in commerce is doubly true in cities and towns where infectious diseases exist. The great and increasing mortality from some infectious diseases has led to increasing research into their etiology and propagation, with the result of a rapid increase in our knowledge of the natural history of these dread diseases; nor has the therapy been neglected, and recent years have seen persistent research by a multitude of observers on this practically useful side of sanitation, aided by the increased knowledge of bacteriology. The only method that we possessed in the past to combat the ravages of epidemic and infectious diseases was largely medication, and that very imperfect. Of the contagious diseases which are actually the more destructive to human life, such as diphtheria, scarlet fever, typhoid fever, and tuberculosis, it may be said that, with the exception of tuberculosis, the means of preventing their spread are so plain that it is within the power of any community to accomplish it. The subjugation of these diseases can be accomplished by a triple

alliance of isolation, sanitation, and disinfection, or, in other words, quarantine, cleanliness, and a knowledge of bacteriology.

In the writer's opinion, a recognition of the value of cleanliness represents the most practical discovery in the treatment of many diseases in this generation, and at the same time it constitutes one of the really great discoveries in the history of medicine and surgery. The application of the principles of sanitation more nearly meets the requirements of a real advance than all other propositions known for the prevention and cure of disease.

The great advance made within the last few years in bacteriological research, and the light thereby thrown upon the causes and histories of infectious and communicable diseases, cannot fail to be of more than passing interest even to the busy physician and surgeon, whose limited time precludes him from engaging in this kind of work. It is not the purpose nor the desire of the author to present in this paper anything new or startling, but simply to call the attention of those present to the subject, that their opinions may be here expressed upon the desirability or non-desirability of bacteriological examinations and cultures in the early stages of many diseases. I am aware that if the affirmative of this suggestion is proven, and bacteriological examinations are to be desired, we may find ourselves like the fabled mice desiring bells upon the cats and asking who would do it. Nevertheless, as it is one of the laws of trade that the demand for any article will produce a supply, we need not curb our desires nor our aspirations, but give full expression to our opinions doubting not that "to will is to have." The field before us is a vast one, as I have before hinted, and it is a narrow mind that considers that the vast changes in professional opinion in relation to many diseases which have taken place within the last few years are all or even a major part of the truth; the writer believes that we are at present only on the border-line of the great facts underlying the etiology and natural history of many diseases, and that the not distant future has in store for us many surprises along this line of research. Our beautiful "City by the Sea" has rare hospital and clinical advantages as well as an intelligent and trusted profession, and may we not hope that even here some one, I know nor care not whom, may obtain more than a local reputation.

The following are some of the diseases in which an early diagnosis will materially aid in treating the disease or preventing its communication to others. Of these (1) consumption or

tuberculosis of the lungs. A disease produced by the presence of the tubercle bacillus, very insidious in its approach, it often escapes detection in its early stages and only when too far advanced to admit of much being done for its amelioration even, is its true nature discovered. A careful bacteriological examination of the sputum in many cases of so-called colds would undoubtedly disclose the presence of this subtle foe to the human race, and thus not only indicate an appropriate treatment of the patient, but aid in protecting the friends and attendants from the dangers incident to unrestricted social intercourse. In relation to the methods of staining, mounting, and examining the tubercle bacillus or cultivating it in colonies, the writer has no practical experience, but judging from what he does know from the written articles in the various medical journals, the process is not so difficult that any one of a good observing mind and having the time at his command may not become proficient in this line if supplied with the proper apparatus and some reliable instruction, which is now attainable without great expense or inconvenience. I believe we shall not do our whole duty to our clients, to society, or to ourselves, until we demand and obtain the means of a speedy and authoritative decision in any desired case.

(2) In diphtheria (less frequent, it is true, and in its percentage perhaps less fatal, but from its rapidity of development and the class of persons whom it attacks even more appalling) an early diagnosis is confessedly difficult and without a bacteriological examination often impossible, and yet it is of the utmost importance to know early in suspected cases of this disease whether the Klebs-Löffler bacillus is present or not. It is too early to predict with certainty just what we may expect from antitoxin in diphtheria, and if we are to use it experimentally it will be of much value in determining its truly specific and curative effects to know that the cases are truly diphtheria in which we invoke its aid. If, as it is said, it does no harm in cases of pseudo-diphtheria and can be used with impunity in any case of sore throat, I answer that while this may be true in the abstract, yet it is, to say the least, poor practice, and only admissible on account of our ignorance of the real condition of the patient and akin to that polypharmacy which puts a large number of ingredients into a prescription hoping that some of them will hit the case. With proper apparatus, mechanical, chemical, and bacteriological (if I may thus use the term meaning small animals), the culture and determination of the Löffler bacillus is, I believe,

not so difficult as many have been led to suppose. I may be pardoned if I quote from a recent editorial in a leading medical journal to explain my point.¹ "Looking at the question in all its aspects, there seems but one conclusion,—viz., that the work of diphtheria diagnosis ought to be familiar, yes, known and pursued by each individual physician whose practice brings him into contact with cases of this character. Why should not this be so? Why should this one particular task be taken from the physician while he is called upon from time to time to assume other and no less difficult procedures in clinical diagnosis. The culture-test for diphtheria is neither difficult nor complicated. Still, for its prosecution, a fundamental knowledge of bacteriology and bacteriologic technique is demanded. The more energetic and enthusiastic of the younger physicians will acquire the knowledge necessary to enable them to apply practically the diphtheria culture-test. Our great hope, however, lies in the young men now receiving their education in medicine. Are we doing our duty by them? The medical student to-day should be so well trained in laboratory methods that he could apply intelligently not only the diphtheria culture test, but many other laboratory tests in diagnosis." The necessity of such a station here is well illustrated by two cases of diphtheria, one of which (and I presume there are many) occurred in this city less than two months ago.

CASE I.—A child in a neighboring city was taken sick on October 6, 1894, and on the 7th a culture tube was immediately forwarded to the board of health of that city, and the following morning report of the bacteriologist as to the culture was, "True diphtheria." Antitoxin and other remedies were used and thirty-six hours later there was marked improvement. Seventy-two hours after the use of the above remedies the throat and nasal passages were free from membranes, yet the culture-test the following day revealed an abundance of Klebs-Löffler bacilli. Tests were made daily until the 29th, and each test revealed the characteristic diphtheritic bacilli, although the child seemed perfectly well after the first week of sickness. The presence of the true diphtheritic bacilli three weeks after all distinctive symptoms had disappeared is very suggestive. It certainly emphasizes the wisdom of making cultures, and the need of quarantining patients, so long as an unfavorable report comes from the board of health. Doubtless this is one explanation of the spread of this direful dis-

¹ Medical News, January 10, 1895.

ease in our city, whose children herd together in our common schools and infect each other during the period of convalescence, when if cultures and tests had been made they would still be in quarantine and much mischief prevented.

CASE II.—A case of diphtheria was reported to the Portland Board of Health, January 15, by one of our most experienced and trusted physicians. No unusual symptoms occurred during the period while under treatment, and in about a week she was convalescent and re-admitted to school, February 11, making twenty-seven days from the time she was taken sick until the time she was permitted to return to school. February 16, her seat-mate was taken sick with diphtheria five days after coming in contact with her associate. Let me state that all possible care was taken by the attending physician in fumigating and disinfecting not only the house and clothing, but the child was washed with antiseptics, yet in all probability she communicated this dreadful disease to her associated seat-mate. To my mind this is a clear case of infection from too early association with one who should have been in quarantine, and also strongly suggests the imperative necessity of a culture station where bacteriological work and reports of reliability can be made for the protection of our schools. The writer believes that nothing less than a favorable report from a reliable bacteriologist should be required by the superintendent of schools as well as the board of health before any child who has had diphtheria is eligible or permitted to return to our city schools, and in no case should it be less than six weeks.

The closing years of the nineteenth century are resplendent in the advance of the sciences all along the line, and in none more than in that of our own noble profession, which is not in the background by any means. That bacteriology is in its infancy, I admit, yet its applied truth is of such advantage and help, and all of the infectious, contagious, and communicable diseases are so intelligently and successfully treated and held in abeyance by its laws, that the writer believes that the extermination of these diseases is not in the very distant future, and that the good time is coming when the human race will everywhere (with only exceptional instances) live out its life. The day of deliverance seems not far off, and the struggle to accomplish this is worthy of man's greatest powers, and even while striving we shall add great motive power to the upward progress of man towards his final destiny, whatever that destiny may be.

Sanitation in Large Cities, and the Disposal of Garbage.¹

BY CHARLES F. MABERY,

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THE rapid accumulation of population in cities within recent years has rendered necessary close attention to certain sanitary conditions which, hitherto, have been allowed mainly to adjust themselves. Municipal authorities are suddenly becoming aware that the older methods are no longer capable of meeting the requirements of modern growth. The three great questions that closely concern the health of all cities are the maintenance of a healthful water-supply sufficient for practically unlimited use by every inhabitant, the removal of sewage, and the disposal of garbage. This does not concern the discussion and the agitation of issues that may be decided years hence; they must receive attention at once.

In its efforts to secure an abundant water-supply every city must depend upon its particular situation with reference to natural conditions. In some instances this demands the solution of greater problems in hydraulic engineering than have ever been undertaken. The metropolitan district in Massachusetts, of which Boston is the centre, composed of twelve cities and fourteen towns, with an estimated population of 894,301, consumes daily 79,046,000 gallons, and the average capacity of the sources now in existence is 83,700,000 gallons. To meet this imperative demand for a greater supply, May 1, 1895, a metropolitan water-board was established to control this entire district. The most feasible and efficient among several plans carefully considered by the State Board of Health for furnishing an adequate supply in this district for the next ten years, includes the construction of a reservoir with an area of six and a quarter square miles, and a capacity of 63,000,000,000 gallons, supplied from the south branch of the Nashua River. The estimated cost of such a reservoir, including land damages, is \$25,000,000. In view of an undertaking of this magnitude to provide the most essential element of life, cities having an unlimited supply of good water at their very doors

¹ From the Western Reserve Medical Journal.

should surely not hesitate to protect it by any reasonable means from contamination.

This leads us to the sources of contamination of Cleveland's water-supply. The most dangerous is the condition of the Cuyahoga River, and the vast amount of pollution it carries into the lake, in close proximity to the intake for the city. The remedy is simple. Sewage and the refuse of rendering establishments and manufacturing plants must not be allowed to enter the river. In this respect the conditions have not changed since the earliest history of the city, and they were permissible up to ten or twenty years ago. At present, aside from economic reasons which alone are sufficient to demand a radical change, there is abundant evidence that a reasonable standard of health throughout the city will soon depend upon such a change, if, indeed, it does not already.

A less dangerous source of contamination of the water-supply, but yet one that concerns the health of the city, is the disposal of its garbage and general refuse. What shall be done with the refuse of a large city is a question that is at present receiving much thoughtful attention. In a certain sense, this matter has been allowed to take care of itself on the principle frequently allowed too great latitude,—out of sight out of mind.

The refuse of a city may be separated into four classes: (1) Paper and light refuse; (2) street sweepings; (3) garbage; (4) ashes. In an extremely interesting discussion of this important subject in the *North American Review* for July, 1895, Col. Geo. E. Waring, commissioner of street cleaning in New York City, gave a description of the present condition of sanitation, more especially with reference to that city. To the present time the refuse of the city of New York has been collected, indiscriminately loaded into scows, and, after being subjected to "scow trimming," it is dumped into the sea in the vicinity of Sandy Hook light-house, where the fish and the waves are presumed to take care of the dangerous organic matter. Previous to 1878 the city paid \$10.50 per week for each laborer employed on the scows. Between 1878 and 1882 the charge for labor was paid by the contractor. Since 1882 the city has received for the privilege of handling the refuse a sum between \$72.00 per week in 1882 and \$1,675.00 in 1894. After the refuse is loaded on the scows it is worked over by Italians ("scow trimmers"), who collect separately the materials of any value. There is a definite schedule of

prices for the different classes of materials :—per hundred pounds, mixed rags, \$0.50 ; rags No. 2, \$0.60 ; dirty white rags, \$1.00 ; soft wools, \$2.00 ; rubbers, \$3.50 ; zinc, \$1.75 ; copper, \$5.00 ; brass, \$3.50 ; pewter, \$10.00 ; paper, \$0.25–0.40 ; carpets, \$0.25 ; rope, \$0.50 ; fat, \$1.10 ; bones, \$0.50 ; hemp, \$1.00 ; cloth, \$1.00 ; bottles, \$0.50–\$3.50 per barrel ; iron, \$4.50 per ton ; tomato cans for solder, \$2.00 per load ; old shoes, \$0.05–0.10 per pair ; hats, \$0.015 each ; broken glass, \$0.10 per bag ; brushes, \$0.05–0.15 each. It will therefore be seen that there is very little so-called refuse material that is without some value.

During several years the city of New York has received annually \$50,000 in labor and \$90,000 in cash for the privilege of cleaning the streets. Dumping refuse into the sea is evidently a convenient means of removing it from sight, but while the agency of the fish and waves may be sufficient to take care of the offensive organic matter, this method must be abandoned, since less easily destructible materials collect on the adjacent shores and beaches of Long Island and New Jersey to such an extent that numerous complaints have been received.

In suggesting methods for taking care of waste, Col. Waring would have the constituents above mentioned kept rigidly separate by the enforcement of an ordinance, and each collected by the city. If all paper and light rubbish were kept within doors, street-sweepings should consist solely of horse-droppings, which the city would have to pay for removal. Probably in cities situated like Cleveland, in the midst of a farming community, the manure should have sufficient value to pay the cost of its removal. The city should enforce its right to all garbage ; to the light watery refuse from boarding-houses as well as the rich material from hotels and restaurants. Ashes should be regularly collected by the city. With such regulations enforced, ashes may be used for filling, or in New York they may be sold for more than the cost of collection, to be used in the manufacture of fire-proof bricks. Mixed in suitable proportions with Portland cement,—one part cement to fifteen parts ashes,—coal ashes form an excellent foundation for stone blocks of asphalt.

All the elements in this method are simple and feasible, except the disposal of garbage. It has long been a favorite belief that immense wealth is lost in the disposal of waste incidental to human and animal life without regard to materials of value that may be recovered or manufactured from it. But this subject is

yet in an experimental stage, and of subordinate interest when compared with the harmless destruction of such material. Sewage farming is not profitable on account of the large quantity of water that must be manipulated for the recovery of a comparatively small amount of substance, only part of which possesses any value whatever. It has been proposed to manufacture commercial grease and oils from garbage, leaving a residue that should be valuable as a fertilizer ; but the composition of the residue shows that it has little value unless it be mixed with some artificial fertilizer. Perhaps the most promising mode for the recovery of value from this material depends upon combustion and utilization of the heat-energy. Many forms of crematories have been proposed, and some of them seem to work satisfactorily. The Engle crematory is probably in use more generally in this country than any other form. Doubtless many will recall the plant which was in operation at the Columbian Exposition in 1893.

Erroneous opinions, however, are entertained concerning the profit that accrues from the heat-energy developed by the combustion of this refuse. In the first place, it is thoroughly saturated with water that can only be expelled by the application of artificial heat, and this must be done before the solid matter can be burned. The weight diminishes one-half in drying. The most efficient forms of crematories provide for preliminary drying by the waste heat of the combustion in chambers over the space where the combustion takes place. Professor R. H. Richards, of the Massachusetts Institute of Technology, has demonstrated the satisfactory operation of a furnace constructed on the principle of furnaces for the roasting of ores. The moist garbage is fed in at the top of a series of inclinations ; as it gradually approaches the space devoted to combustion, water is expelled by the waste heat. Evidently some fuel must be used in any form of crematory, and in practice it is found that an additional source of heat is occasionally necessary to maintain the proper temperature. No doubt some heat-energy is to be gained, but the amount is comparatively insignificant in value when it is compared with the vital question of disposing of the refuse in a harmless manner.

In the city of Worcester, Massachusetts, with a population of 100,000, the garbage is collected by the city and fed to swine in an immense piggery outside the city. Evidently such a method depends upon the selection of a site where the odors cannot create a nuisance. It would scarcely be feasible in a large city. The

city of Providence, Rhode Island, population 139,300, in 1889 made a contract for five years, at the rate of \$21,545 a year, for the treatment of its garbage. The method employed was based on the Merz patents.—extraction with naphtha and naphtha-vapor for the removal of grease after the garbage was dried. For collection sixteen two-horse carts were employed, each with a capacity of two tons. The weight diminishes one-half in drying. At the expiration of this contract, in 1894, this city returned to the original method of disposal,—distribution to farmers.

It is said that a contract may be made at a considerable price for the output of garbage in New York City, but a suitable plant of sufficient magnitude would be very costly. In the treatment of garbage at any one station several important elements enter into the details that are somewhat difficult to control. The collection and delivery are expensive. In Boston the cost of collection of garbage is \$182,000, in New York \$450,000, and in Chicago \$500,000, annually. It is difficult to secure a site for a plant within easy access without creating a nuisance from the unavoidable odors. A plant was erected in Boston at a cost of \$35,000, which was expected to take care of 150,000 tons of garbage annually. The method consisted in submitting the material to the action of steam under a pressure of 150 pounds for the removal of fats, and use of the residue as a fertilizer. The plant proved to be insufficient, and it was in operation scarcely long enough to demonstrate its operative efficiency when the odors proved to be so objectionable that its use was prohibited by an injunction. During the last year, since this method was rejected, the city has dumped the greater portion of its refuse outside the harbor. Portions that would have to be carted long distances from the outskirts have been delivered to farmers.

It is evident that the satisfactory disposal of garbage on a large scale has yet to be accomplished, although the larger cities are much in earnest in its accomplishment. In the mean time, what shall be done in cities that cannot afford to undertake costly experiments? It is evidently safer, at least from a pecuniary point of view, to await the results of larger experiments, provided some provisional means can be devised for maintaining the public health. The dumping of garbage into bodies of water, however large, seems to be objectionable. Such disposal of the refuse of Cleveland by depositing it in the lake should not be permitted. The depth of the lake is not sufficient to allow of the unlimited

accumulation of such masses of solid matter. Much of the *débris* must find its way to the shore, and in certain directions of the wind it is not certain that the contamination may not reach the section from which the city takes its water-supply. But if dumping into the lake is prohibited, some other method must be adopted. It is less difficult to say what should not be permitted than to suggest a remedy. In the present condition of knowledge and experience it would be hazardous to attempt the construction of a crematory of sufficient capacity to consume the entire output of the city. An ordinance should be enforced to separate garbage from ashes, and the ashes should be collected at stated intervals by the city. While all loose rubbish, such as paper, old shoes, etc., should be collected as a matter of general cleanliness, this is of subordinate importance in respect to public health.

Evidently the most serious and pressing problem in city sanitation is the destruction of garbage. If the testimony of a great number of individuals on this subject could be collected, I am sure it would be the universal experience that kitchen-refuse in private houses can be unobjectionably consumed by combustion. This has been the practice during twenty years in my own family, and many persons have made the same statement to me as the result of long experience. With a fairly good fire in a range or in a boiler or furnace, ordinary moist refuse can be readily burned without odor. Occasionally in Cleveland, with the wind in the northeast, which is infrequent, there is a slight downward pressure that interferes with the draught, and at such times a slight smoky, but not offensive, odor may be observed.

The only device that has been suggested so far as I know for the consumption of refuse in connection with household means for heating is one first successfully tried by Dr. S. H. Durgin, chairman of the Boston Board of Health. This attachment is now manufactured, and in Boston and New York it gives good satisfaction.¹

The refuse is transferred to a receptacle in the funnel near the stove, where it is carbonized, and the charcoal may be used for starting a new fire.

There is no question that kitchen refuse can be consumed by each householder, avoiding the use of the traditional swill-barrel, and avoiding, also, the unpleasant odors of the city cart. For,

¹ Our readers will find a very efficient household garbage cremator recommended in the advertising pages of the ANNALS OF HYGIENE.—[Ed.]

however closely the garbage-cart may be constructed and with all possible care on the part of the workmen, the odors during collection are far-reaching and intensely disagreeable. Although it is claimed that the attachment described above may be constructed on a sufficiently large scale to consume the refuse from restaurants and hotels, perhaps it would be more satisfactory for the city to build a small crematory and collect for consumption from such places.

In view of the general use of gas-stoves in kitchens, it may be urged that without the range combustion of refuse is out of the question, at least during the summer months. To overcome this difficulty, an attachment, such as the one described above, may be constructed in a stove-pipe leading into a chimney and the refuse charred by means of a gas-heater similar to those used in gas-stoves, set into the funnel. Gas-stoves should never be used in rooms that are not well ventilated by openings into flues. Otherwise the atmosphere will soon become vitiated by the products from the burning gas to such an extent that it will become unhealthy.

From what I have learned of the present condition of the disposal of garbage, I am convinced that at present the most economic and efficient method for Cleveland would consist in requiring the consumption by each householder of his own kitchen-refuse, and the consumption by the city in a crematory of suitable size of refuse from larger places.

NOTE.—Recent tests made at Royton, England, show that the heating value of dried refuse is only about one-seventh that of good coal. On account of this low heating-power and the great amount of water to be evaporated, city refuse would not pay for carting.

Longevity.


Sir Benjamin Richardson, M.D., of England, thinks that the normal period of human life is about 110 years, and that seven out of ten average people could live that long if they lived in the right way. They should cultivate a spirit of serene cheerfulness under all circumstances, and should learn to like physical exercise in a scientific way. No man, he says, need be particularly abstemious in regard to any article of food, for the secret of long life does not lie there. A happy disposition, plenty of sleep, a temperate gratification of all the natural appetites, and the right kind of physical exercise, will insure longevity to most people.

**The Importance of the State Government Control
of Artificial Agencies that may be Productive
of Noises.¹**

BY AUGUSTUS P. CLARKE, A.M., M.D.,

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HE inhabitants of the American States have long been noted for their hurrying and bustling habits, for their ceaseless, restless activities, and for their all but immodest disposition when setting themselves about to accomplish a purpose, not to intrust the fact to the keeping of a silent herald. So marked have these characteristics become and so influential have they been in modifying the development of their personality that Europeans, surrounded by other amenities and pleasures, have fancied that the average American citizen is still but a son of the forest, that the noises incidental to his movements are only the rustling of his feathery head-gear, that the implements of his trade are the disguises of the tomahawk, and that the acclamations expressed upon the success he attains are not unlike the war-whoop of his aboriginal predecessors.

After eliminating from our field of vision all the extravagances of imagination indulged in by trans-Atlantic personages, there is, nevertheless, much that, having been borne along by our peculiar methods of action, has become more and more the subject of the deepest concern, and requiring also for proper correction continued interest and co-operation on the part of all. Not the least among the factors inimical in no small degree to our health, comfort, and repose are the noises that are on all sides produced by artificial agencies. Perhaps in the decades that have preceded ours, a person would not have been deemed patriotic or public spirited had he entered his protest against occurrences which have been regarded as incidental to the affairs of the greater moment, but it must be remembered that the rapid multiplication

¹ Read at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May, 1895. From the Journal of the American Medical Association.

of the agencies in question has been carried on much more with the view of enhancing private interest than of providing for the needs of the public at large.

The employment of the tramway system upon the streets of American cities was at first considered not only as an innovation, but also as an encroachment upon private rights; this system was at length endured and patronized by the abutters for the reason it was felt that those less favored might with greater facility be enabled to reach the more distant points of their destination. The introduction of the trolley cars into the larger cities is not only an encroachment upon private rights of the inhabitants, but the whole management of such ponderous machines, through the crude and unscientific principle of construction, is not only a waste of force, but its practical application becomes a veritable nuisance. Such a method of conducting travel we have reason to fear will, to a very great extent, continue to be so, on account of the insufferable noises that must necessarily result from the operating of such cars by the companies for the sole purpose evidently of gain. Such harsh, bewildering sounds, such fiendish, hideous clangor with which the ears of the would-be sleeper must ever ring, cannot but act injuriously upon his whole organism. Though legislative enactments thus far have not been put forth in the direction to lead to the abatement of the evil, yet there is no sufficient reason why the State should not take cognizance of any factor that may disturb to such a degree the health and comfort of mankind.

No good reason can be offered why boards of health should not be clothed with all necessary powers for the supervision of travel and of exercising a salutary control over all the means for accomplishing the same. Indeed, there is more reason why such powers should be delegated than there is for granting authority to institute measures against an apothecary or other dealer who may chance to sell a package of sal soda or of sal tartar, or to dispense a vial of laudanum, or other quite unimportant article, which may not be up to some arbitrary standard of weight or measurement.

All must admit that there are unnecessarily made disturbing noises that should be prevented by legislative enactment. The numerous whistles and bells employed on railway trains are often deafening in the extreme, and thus become the source of much discomfort, not only to persons who may be suffering from severe ill-

ness, but also to the inhabitants of an entire neighborhood. The ringing of church bells, that betoken the coming or the presence of the parson, is often a merciless herald to those who may be too unfortunate to attend the meeting for the appointed service.

It is becoming more and more apparent that in our country, where the public affairs are sought to be managed by popular sovereignty, less attention is paid in response to the actual needs of the masses than in those countries where the will of the people exercises but little influence in the election of rulers. The hurrying through our streets, often at most unseasonable hours, of brick-wagons, ice-carts, milk-teams, market-men's loads, beer-carts, and of the numerous other vehicles, all for private gain or for a syndicate's exchequer or for a company's till, is most uncongenial to all, and is often prejudicial to that large number who are dependent for their activities on quiet and refreshing sleep.

Those who are weak, or who are suffering from peculiar idiosyncrasies, or whose proper psychic balance is dependent on favoring influences, should not be left to suffer through the capricious temper, or be brought under the power for gain of the heartless and unfeeling members of the community. I venture to say that in almost every municipality of our metropolitan district, or our Greater Boston, the daily noises incident to artificial agencies, to say nothing of the avoidable noises made by persons who have not the slightest regard for the public welfare, are frequently greater than what are heard in many of the larger European cities. When any complaint or remonstrance is presented to the officers of the law on account of the ruthlessness of such persons, the answer almost invariably returned is that noise is but a mere inconvenience. It has not been uncommon in my own practice, and I feel certain that it is not unusual in the practice of other physicians, to have patients who, while undergoing the effects of long and exhausting illness, are compelled to endure their full share of this brain-paralyzing and nerve-destroying agency.

It has long been a recognized fact that in man the greater part of the impression that is received reaches the sensorium through the medium of the different special senses. Odors that are agreeable produce, for the most part, a salutary effect upon the organism ; those that are disagreeable, when endured for long continued periods, exercise an injurious influence. Objects, especially articles of utility, presenting rich and beautiful colors are conducive to the health and strength of the person ; the same may

be said of all agencies that transmit through the several special channels of communication pleasing and agreeable impressions. Undue irritation or excitation of any one of the senses or of the organs of the body is liable to effect pathologic changes, either from producing immediate and serious derangement in the histologic elements, or from not allowing sufficient intervals for rest and recuperation. The intricate and delicate arrangement of the auditory apparatus is no exception; it cannot repel the persistent assault from noises thus made upon it without becoming the centre of a diseased condition. Persons who are exposed to such harassing attacks appear dwarfish, undeveloped, or with a retrograded intellect, morbid in their impressions, and if, perchance, they should rise to any considerable degree of activity, they would still be prone to relapse into a listless state that borders on neurasthenia, and to other varieties of the neurotic state.

When one comes to consider what hideous noises are endured by the inhabitants of our more densely crowded municipalities, it would seem that such people are, indeed, lacking in moral stamina; that they are really deficient in what is essential to the development of the higher attainments of mankind. It may be said, however, that the pursuing of the personal aims and ends of the individual tend to lessen interest in matters not directly conservative to such attainments; there then will be brought about no unity of action and no well-directed opposition to encroachments on rights regarded only as public in the advantages which they insure.

In order, therefore, to overcome the several factors diverse to the higher accomplishments for the public welfare, and to elicit personal attention, irrespective of private enjoyment, for the support of such measures, it will become necessary to bring into operation other methods, to be carried out in all their details for the proper administration of affairs of state. The building of great public thoroughfares, and especially the grading of such avenues of travel, should be carried on more with the view of conserving all the elements of public health and convenience than of adding features that may be helpful and useful in merely one direction only. In this connection may be mentioned notable instances of the unwise policy so often pursued in the paving¹ of

¹ See Medical News, of Philadelphia, August, 1893; also the Buffalo Medical and Surgical Journal, October, 1893. In both of these journals the baneful effects of city noises are ably discussed.

many of our most important streets with rubble stone, or with stones that have been broken into cubes or blocks, and then laid in the usual manner of doing such kind of work. Streets thus prepared become not only the source of great annoyance to the inhabitants by the loud rumbling, by the rapid driving over them of the many heavy wagons, which is often done at unseasonable hours, but they also become, as all sanitarians admit, the source of danger from being the receptacle of filth from drainage matter that continually gravitates into the interstices between the stones, that are laid in such a primitive manner. The employment of concrete, cement, or asphalt,¹ or other similar material, on our streets, as is usual in some foreign cities, would be an improvement and would fulfil most of the purposes for which such streets are graded. The use of properly constructed vehicles, the regulation of the driving, and the hours allowed for the travel should be under the strict control of the government officers. Much of the noises of our street-car system could undoubtedly be prevented by the more general adoption of underground ways, or, by what is a better system, the building of roads after the manner of the Ringbahn, of Berlin. If the latter should be adopted, the stations might be at greater distances from each other. Tramways, with cars of light gearing, should be the only ones allowed for intramural service. While the fostering of a patriotic spirit should be encouraged and allowed the broadest latitude on all proper occasions for its true exhibition, its conservation should not be jeopardized by the government's yielding to the caprices of unthinking persons, as is so often shown by its resorting to vain and useless mockery in its attempts at public celebrations. On such occasions the discordant ringing of bells, the blowing of horns, the loud cracking and firing of torpedoes, the display of what may really be regarded as "antique and horrible," have helped to displace many of the better class of residents of our eastern cities, and have likewise been the source of much discomfort in their relationship, but unfortunate in their location and surroundings.

As I said before, I can recall as occurring in my own practice numerous instances of persons who have been victims of such public disorder, or instances of persons whose recovery has been materially retarded by the demonstrations of such public license. Have not the minority, or the few people who thus suffer, some

¹ Op. cit.

vested rights that the majority is bound to respect? Surely, the persons whom the physician for most part is summoned to treat, belong to this latter class. It is in the interest of this class, and for the more unfortunate, generally, that the true physician was first led to choose for his life-work the profession of medicine; that he ever seeks by the employment of all his energies to improve his talents for the attainment of the highest good. This he does that he may fulfil the mission to which he feels that he has been called by divine appointment.

Dirty Feet and Poor Health.

Dr. H. S. Brewer thus writes to the *Medical World*: A patient of mine suggested to me that if I washed my feet every night in warm water and dashed them into a cold bath afterwards, I would find my rheumatic troubles relieved.

Now once a week I have been accustomed to bathe my feet, and considered I was an average clean person. By following out the advice I find that it has greatly assisted in relieving myself of periodical attacks of migraine, and for a wonder it has greatly helped an acidity of the stomach, which afflicted me very much. He claims (being an electrician) that man requires to come in contact with the earth, and that incrustations on the feet become non-conductors of electricity. He eschews rubbers, and cites statistics to prove that people who go the nearest barefooted are more rugged and exempt from colds. I am convinced there is a grain of truth in the statement.

Rubbers make one feel uncomfortable, and what a relief it is to let the cold air play on one's feet after being closed up in airtight covering all day. It is possible that dirty feet produce or aggravate migraine.

He claims an exemption from rheumatism to those who will go barefooted and follow out his doctrine, for I have seen him wade in the snow barefooted. He may have borrowed the suggestion from the Jesuit father who claims to cure all diseases by walking on ice or snow.

In these days of artificial heat, food and vitiated atmosphere, it is a great wonder there is not greater mortality than there is.

Let us keep our feet clean.

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EDITORIAL

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Human Equality.

DR. FORBES WINSLOW contends that under despotic forms of government suicide is much less prevalent than it is in countries governed on the principles of republicanism, which is another term for human equality. Where the actions, thoughts, lives of human beings are controlled rather by others than by themselves, where the life of the masses is, so to speak, regulated by the logical intelligence of constituted authority rather than by the oftentimes erratic impulse of the individual, under such conditions (paradoxical as it may seem until explained) life is in itself more pleasant to the individual, and he is, hence, less anxious to terminate it.

It seems to us logical to infer that each act of self-destruction must necessarily imply that the person so acting has no wish for a continued life, and it must be conceded that this frame of mind must be the outcome or the result of a life so lived that its living has not been, or at least is not at the time of the act, a pleasure to the individual. Even an insane man will not kill himself if his insanity is a pleasure to him; the very act of self-destruction implies a determination to destroy a consciousness that is a constant or momentary source of discomfort. We assume as incontrovertible that no healthy person whose life, whose very living, is a source of pleasure ever committed suicide, ever wilfully sacrificed that which to him was a pleasant possession, and when we

find self-destruction most prevalent among those whose lives are self-regulated, we are compelled to pause and ask whether each individual is capable of regulating his life, his methods of life, to the best advantage, to the attainment of the best ends of which his organism is capable.

In his lecture on "Liberty of Man, Woman, and Child," Colonel Robert G. Ingersoll contends that thought is material, that thought is a brain product, as vegetables are products of the soil, and that each individual should harvest his mental crop and act in accordance with the dictates thereof. The idea is in accord with the theory of human equality; but it is not in accord with the teachings of biology or of physiology, the student of which cannot logically believe in the equality of mankind. Nature plainly indicates that she intends that a comparatively few shall lead the masses who are designed as followers.

Grains from the same ear of corn planted, in the one instance, in the rich, fertile soil of Pennsylvania, and in the other instance in the barren, sandy soil of lower Jersey, will germinate and produce crops in both localities, but how vastly will they differ; so the same exciting or inciting impression upon the brains of 1000 men will produce 1000 crops of thoughts, but how vastly will they differ, from the most logical to the depths of absurdity, from conservatism to socialism, from good citizenship to nihilism, from self-preservation to self-destruction. While, according to our constitution, man may be born free and equal in the eyes of the law, he is not free and he is not equal in the eyes of nature; he is born a slave to inherited tendencies, and he is born in all varying degrees of self-capacity. Did we but recognize the unquestionable fact that mentality is capable of development, not alone by books and by the help of others, but by exercise and use of the mental attributes born with each of us; did we each one of us recognize that we are not all equal in the eyes of nature, and did we each strive patiently to understand and properly estimate ourselves and to fit ourselves into the holes designed for us by nature, we would have very little anarchism; we would have much less self-destruction, and this world would be altogether a much more pleasant place to live in.

Argue as we may, men are not all equal, physically and mentally; nor are women either, and it is the direct and indirect and remote results of the assumption that they are that makes most of the trouble of the world.

Gymnastics in Schools.

“PHYSICAL culture, the superintendent reports, does not receive the attention which its importance as a school exercise demands. In connection with this topic the necessity of special attention to physical training for girls is urged, and a *gymnasium is designated as a necessary adjunct to every properly appointed school.*”

The above quotation is from the report of a distinguished school superintendent, a man who has exhibited masterly skill in the management of the schools under his care, and whose reputation in this line is so great that his recommendations carry great weight. Hence do we consider it important that we should call special attention to, and comment upon, that sentence in his report which we have italicized.

It is a very prevalent error, even among those who should know better, that gymnastic exercise is conducive to good health; the idea of “muscular strength” and “vital strength” being synonymous is generally entertained, but it is not correct.

It is all right for Sullivan and Corbett to use gymnastic apparatus; it is all right for one who wishes to develop unusual muscular strength to patronize gymnasiums, but we must always remember that muscular strength and vital strength are two entirely different things; that it is *vital* and not *muscular* strength that gives health and insures long life, and that vital strength is not found in gymnasiums, nor in any form of violent exercise, which, on the contrary, rather destroys it.

Muscular strength means strength of the voluntary muscles, of the organs or agents of motion; vital strength means strength of the internal vital organs, the agents or organs of life, and while, to a certain extent, the development of the one system goes hand-in-hand with that of the other, *excessive* development of one nearly always implies deterioration of the other, and the majority of those who resort to gymnasiums do indulge in muscular development to excess.

Physical culture is to be commended, of course, all kinds of sports and pastimes and movements in the open air are to be warmly encouraged, but, as an “*all-round*” sanitarian of many years’ practical observation and experience, the editor of this journal is compelled to differ with those who hold that gymnasiums are necessary adjuncts to properly appointed schools; not only

are they not necessary, but, in many instances, they will prove damaging adjuncts.

We are not governed by prejudice, impulse, or public sentiment in our views on this subject, but hold the opinion that we have as the result of many years of observation and experience.

Heredity.

DR. H. C. WOOD, Professor of Materia Medica in the University of Pennsylvania, is one of the few men of authority whom we have heard give utterance to logically correct views on the question of heredity, and it is of the utmost importance that such expressions should be widely disseminated, because the ideas held by the public on this subject, and even by many scientific men, are not only erroneous, but extremely injurious in their effects.

The doctrine that we have always held and taught is that everything *can be* and nothing *need be* developed in the individual as the result of inherited influences. This position is supported by Dr. Wood's contention that it is not any particular disease, as a disease, but rather the tendency thereto, that is transmitted from parent to offspring; the distinction is vast, and if fully comprehended alters the whole aspect of heredity.

The popular conception that certain diseases are transmissible by heredity, and that he who thus inherits any particular disease must, necessarily, sooner or later, fall a victim to this disease, such an idea not only makes life miserable for the individual, but it actually becomes a factor in the production or development of the disease that is dreaded.

Just as the children usually inherit the facial lines of their parents, which can be completely altered by practice, so also will the children inherit an inherent weakness of any organ or part that may have been diseased in the parents, but, as with the lines of the face, so also with this tendency to disease, properly directed efforts will eradicate the tendency.

What do we mean by properly directed efforts? The living of a life that is calculated to keep the body in the best possible physical condition, combined with the use of reason, to convince ourselves that there is no necessity for the disease that we fear to develop in us because our parents have had it.

Enumerating the causes of "suicide," the English specialist, Dr. Forbes Winslow, places heredity in a conspicuous place, and he fails to qualify this causative factor as we have done.

This is a dangerous statement. If your father has committed suicide, there is no logical reason why you will do likewise, unless you wilfully allow the erroneous conception of heredity to so dominate your reason as to cause you to think that you are irresistibly doomed to the commitment of a similar act.

Whatever brain defect may have induced the father's act need not necessarily exist in the child; a tendency thereto will doubtless be transmitted, and if this tendency be fostered and developed in the child as it had been in the father, the result will be the same; but if the conditions necessary for its development are avoided the act need not ensue. Blind, unresisting submission to that which is erroneously considered inevitable rather than manful, logical, determined, intelligent resolution not to so submit is the result, the terrible, fatal, ruinous result of this erroneous conception of heredity. *Do not forget that anything CAN BE and nothing NEED BE transmitted by heredity.*

Clean Thermometers.

Those who are constantly preaching the germ causes of disease are the very fellows who many times are equally as careless as their unbelieving friends. How frequently do we see physicians take the temperature of their patients, regardless of the existing disease, wipe the instrument with their handkerchief, which is the most liable linen to be full of germs, or a towel, or even use the sheet, and carefully place it away in a case prepared with a small amount of absorbent cotton in the bottom to keep from breaking, and unintentionally preserving the germs from time to time, to be conveyed to the next unfortunate, who may be the first patient called upon. This seems to be a very simple thing to discuss, but any reasonable person can readily see the necessity of having his thermometer thoroughly cleaned every time it is used. It should be washed with soap and water, and if any cotton is used in the bottom of your case, let it be sublimated cotton, and occasionally renew it.—*Charlotte Medical Journal.*



Lung Gymnastics.

Properly conducted lung exercise will aid digestion, increase the desire for food, improve nutrition, increase the weight, add to the vital force, and lengthen life.—Walbridge, *Medical Record*.

A Woman for Health Commissioner.

Dr. Emma Johnston Lucas has been appointed health commissioner of Peoria, Ill. She is the first woman in the city to hold any public office. The medical men of Peoria, as well as the women's club, strongly endorse her candidacy.

Faults of many Mothers.

American women of all classes are, as a rule, sinfully negligent of some of the duties which pertain to health, especially exercise in the open air. The excuse that their many cares engross them, and that they in consequence have but small opportunity for leaving their homes, is scarcely sufficient. The number who actually cannot enjoy each day an hour's outing must be small, indeed, among the class forced to work the hardest. Not only do many women fail in this respect in their duty to themselves, but their young children suffer in consequence of the same neglect. From one week's end to another during the winter not a few of them keep their little ones in overheated rooms, if not huddled around the kitchen stove, and the result is we find them, as spring approaches, weak, puny, and ailing. In such families, colds, coughs, sore throats, and the like are common afflictions. There is scarcely a day during the coldest season when even the baby cannot be safely taken out of doors. Mothers should understand that upon the daily enjoyment of fresh and open air depends, in a great degree, the health of their little ones, as well as their own; it is, in fact, absolutely indispensable to the well-being of all.—*Boston Journal of Health*.

Wouldn't Eat Them Raw.

A good story comes from the dispensary of one of the Chicago hospitals. The physician in attendance, after listening to a woman's tale regarding her husband's ailment, prescribed some medicine, and also told her to apply some leeches on the sick man. When the woman returned next day the doctor asked her if her husband was better.

"No," she said; "he is rather worse, if anything."

"Did you follow out my instructions with regard to the leeches?"

"Well, no—not exactly. John wouldn't eat them raw, so I fried them for him."

How to Walk Upstairs.

"There are but very few persons who know how to walk upstairs properly," said a well-known physician. "Usually the person will tread on the ball of his foot in taking each step, springing himself up to the next step. This is very tiresome and wearing on the muscles, as it throws the entire suspended weight of the body on the muscles of the legs and feet. You should in walking or climbing stairs seek for the most equal distribution of the body's weight possible. In walking upstairs your feet should be placed squarely down on the step, heel and all, and then the work should be performed slowly and deliberately. In this way there is no strain upon any particular muscle, but each one is doing its duty in a natural manner. The man who goes upstairs with a springing step, you may be sure is no philosopher, or, at least, his reasoning has not been directed to that subject."—*Pittsburg Dispatch*.

Prenatal Influence.

A certain rough, uncouth family had in it one daughter who was a very striking contrast to the rest,—pretty, gentle, refined, book-loving. When asked the reason for this contrast, the mother said she knew of none. In the months before this daughter came they were living in the South, in a rude cabin. She could recall no refining or cheering circumstances, except that a peddler had called with a pack of books. The poor mother saw one volume, in green and gold, which attracted her admiration. It was Scott's "Lady of the Lake." A keen desire for it possessed her, but the

dollar seemed too much to spend. But such was her longing for it the rest of the day and night that she rose from her bed, walked four miles to the village, roused the peddler, bought the book, and came home as happy as a child.

Through all that summer she read and committed to memory the beautiful, musical tale. It appeared to her that she was with those people by the lakes in the mountains. She saw "Ellen" stepping about so sweetly in the rhyme; it seemed so real to her, especially after she could repeat it to herself.

This, then, was the explanation. The babe came to this world bearing on its delicate brain, and even on its little face, the impression of the beautiful images which had filled the mother's thoughts.—*Mrs. Kirby.*

Refrigerators.

People who would go into hysterics over a grease spot on the floor will permit their refrigerators to acquire that musty, close, disagreeable smell which is a sure sign that something is wrong. Much disease commonly attributed to the plumbing and other sources might be more justly set down to the refrigerator, and food kept in such an atmosphere is likely to produce sickness.

Effective Disinfection.

Under the Sanitary Act of 1891 the sanitary authorities of London are bound to provide temporary shelter free of charge to all persons who are compelled to leave their dwellings for the purpose of enabling such dwellings to be disinfected. To what extent this obviously necessary measure is complied with is not definitely known, but the American reader will infer that, like many other well-intended sanitary requirements, it is more frequently honored in the breach than in the observance. Dr. Anthony Roche, in a letter to the *Irish Times*, calls attention to the London requirement with a view to securing its adoption in Dublin, whereupon the *Medical Press* says, "The requirement is but little known in the metropolis." As Dr. Roche points out, it is useless to disinfect infected premises if the occupants, whose clothing is saturated with infection, are allowed to wander about the streets or carry the infection into neighboring premises.—*Journal American Medical Association.*

Heredity and Environment.

Man is four-fifths heredity and one-fifth environment. He is a bundle of inherited tendencies, which environment strengthens or modifies but never eradicates. A poison vine never bears peaches. A fertile soil, an appropriate atmosphere, may yield a luscious fruit, but poison permeates it to the core. A child of criminal descent may be reared among Christian surroundings and acquire a certain veneer of manner, his sins may be gilded, but vice lurks in his heart, and sooner or later the stress of circumstances will bring it to the front.

Incorrigible criminals should be cut off from the body politic, just as weakly or diseased branches are lopped off the sturdy trees. The proverbial ounce of prevention is worth its full value here.—*Medical Brief.*

Moving to Cities.

The closing decades of this century are witnessing no more remarkable phenomenon than that shown in the migration of population, not so much from country to country, as from place to place in the same country, writes Henry J. Fletcher, in the *August Forum*. This interior migration is most noticeable in the most progressive lands. It is effecting a rapid transformation in Germany, England, in Australasia, under widely different conditions, but nowhere is its operation more general than in the United States. In Australia, for example, the rural districts prosper and a few great cities grow enormously, while all the intermediate communities are relatively stagnant; but in the United States the drift is unmistakably from the farms to the nearest village, from the village to the town, and from the town to the city. Out of a total of 909 townships in New York 274 gained numerically between 1880 and 1890, while 635, or more than two-thirds, became less populous.

This transplantation has most far-reaching effects. Politically, it transfers a preponderance of power to the great cities, changing the results of important elections and increasing the urgency of municipal problems. Socially, it swells the number of the classes most exposed to agitation and discontent, intensifies the dangers to be apprehended from social upheavals and widens the growing chasm between the classes. It concentrates the wealth of the nation into fewer hands and reacts profoundly

upon the material, social, and political life of the entire nation. The more rapid the process of centralization, the more frequent and intense must be the periods of depression needed to correct it.

The student of social science, observing so stupendous a movement, asks whether society is to be a gainer or the loser by it. On the one side he trembles—especially if he be an American—at the prospect of adding enormously to the burden of the municipal governments in the large cities, already almost breaking down through corruption and inefficiency. He realizes that in times of social disturbances the great cities are an ever-growing menace to the public authority, and even to the existing social order. He knows that crime is increasing, like the cities, out of all proportion to everything else; and that the massing of dense populations means impaired public health and morals. The constant depletion of the smaller towns and of the country, steadily draining away the best, lowers the tone of village and farm-life, prevents the rapid diffusion throughout the country of improvements in education, and tends to exclude the inhabitants of the rural districts from participation in the great ameliorations of modern life which ought to be common to all.

Kitchens and Cellars.

“Cleanliness is next to godliness.” But in the law of Moses cleanliness *was* godliness, and sinners were “unclean.” Dirt brings death; and death is “the wages of sin.” If people would have health, they must keep clean. Old dish-rags around the sink, sour milk, sour food, decaying substances of any kind, fragments left about the closet to gather in flies and mice, odds and ends of crumbs, crackers, sugar, and all such things help to fill the house with ants, roaches, moths, germs, disease, and death. Fevers lurk in dirty dish-cloths. Typhoid and malaria rise like spectres from cesspools.

Look carefully to the cellar. Sometimes there is fresco above and fungus beneath; curtains and lambrequins upstairs, and stale cabbage and rotten potatoes down below. Then the doctor’s gig stops in front of the big house, and the undertaker follows in due time.

Clean out the decay; see that nothing is allowed to rot on the premises. Ventilate your cellar, fling open the windows, have pure air and pure water; if you have any doubt about your water,

boil it before you drink it ; but do not put something in it that will be worse than the bad water. Study Moses's health laws,—obeying them may add years to your life. If a house is kept clean from top to bottom with plenty of lime and whitewash, we may then have more faith to pray for Divine protection, and more confidence to trust in the providence of the living God, who is our life and health and strength.—*H. L. Hastings.*

Rewards of Early Rising.

Aside from the helminthous property ascribed to the early bird by the adage, a recent newspaper writer implies that if one would become a healthy and well-preserved monarch all that is necessary is to acquire the habit of early rising. In support of his theory he cites the Emperor Francis Joseph of Austria, who invariably retires to rest at nine and is up at five—sometimes even at four—in the morning, and who is “athletic, elastic, and youthfully active.” King Humbert, of Italy, likewise remarkably preserved, is also up with the lark, and has taken his first breakfast long before the majority of his subjects are out of bed. Among the early risers are Emperor William, the Queen regent of Spain, King Charles of Roumania, King Oscar of Sweden, King Leopold of Belgium,—indeed, says the writer, “it only requires a passing glance at the various thrones of Europe to show that those monarchs most healthy and well-preserved for their years are precisely those who, according to the new-fangled doctrine of the medical authorities, ought to be the ones most physically decrepit.” The moral of which has been already pointed out : Get up early if you would be a healthy and well-preserved monarch.—*Journal American Medical Association.*

To Make an Invalid's Bed.

As trained nurses are not always attainable, every doctor should know exactly how to furnish, make, and change a bed for an invalid, that he may instruct the family. These are the simple and explicit directions as taught in the training-school for nurses. The bedstead should be of metal, if possible, six and a half feet long, three feet wide, and two or two and a half feet in height, for greater ease in caring for the patient.

The mattress should be of hair, as that can be easily cleansed and disinfected. The sheets are better of cotton, as linen is apt to chill a sensitive person, and there should be three in use at once,—the upper, draw, and lower. Blankets of good quality make the best covering, and the counterpane should be of light weight. Two large pillows are needed, one of hair and one of feathers, with as many small pillows as the necessities of the case may require.

Having the bedding at hand, pin the lower sheet in place, stretching carefully and pinning underneath to the mattress, that the smooth surface beneath the patient may not be readily worked into wrinkles. Now fold the draw sheet crosswise and lay on the under, so that it will reach from the patient's shoulders to well below the hips. Pin on each side to mattress, and spread on the upper sheet, leaving a little loose for the feet and long enough to turn over blanket at top. Have the blanket long enough to tuck around patient's neck, and counterpane long enough to fold over the same length as sheet; the blanket less.

Beat up pillows and smooth free from wrinkles. Then turn back counterpane, blanket, and sheet, leaving the sheet folded so that it will come next to the chin. In changing the bed, where the patient is too weak to be removed, roll carefully to one side of the bed, putting one hand against the invalid's shoulder and the other against the hip. Now, keeping patient well covered, unpin lower and draw sheets on the vacant side and roll up against the patient in lengthwise folds. Replace with fresh sheet and draw, pin smoothly in place, roll the patient gently over on the clean side (still protected with upper sheet), unpin and take off soiled lower sheet and draw, pull the fresh ones in place, and pin. Now put clean upper sheet over the soiled one, tuck in, and then reaching under, remove the soiled one. Lift the head gently and change the pillows, beating and smoothing as before.

To change the night-dress, roll up the skirt part to the shoulders, take off sleeves, slip over head and off. Have the fresh one ready, warmed, and aired; put arms in first, then lift over the head, pull down under the shoulders, and smoothly under hips, and you will have your patient freshly changed, with comparatively little trouble to the nurse and with infinite comfort to the patient.

What is Good for all Men and Women.

We see clearly that it is good for every man among us that he and every other man should be as tall, as strong, as well knit, as supple, as wholesome as effective ; that it is his first duty to take his own muscles, his own organs, his own bodily functions, as perfect as he can make them, and to transmit them in like perfection unspoilt to his descendants. We see clearly that it is good for every woman among us that she and every other woman should be as physically developed and as finely equipped to take her place as mother as it is possible to make herself. We see that it is good for every woman that there should be such men, and for every man that there should be such women. We see it is good for every child that it should be born of such a father and such a mother.—*Grant Allen.*

The Ventilation of Places of Entertainment.

This has been a very hard season for all places of entertainment ; and the problem of warming and ventilating buildings where large numbers of persons congregate has rarely offered so many difficulties. There is one place, however, where special advantages are enjoyed. As a rule, the crowding of spectators together in a limited space is the chief cause of trouble. At Olympia it may be said that the space is almost unlimited. The difficulty here is the other way round : there is no danger of the place becoming too hot through overcrowding. The great hall measures 650 feet by 400 feet, and is 130 feet high. Though it would be possible to accommodate 10,000 spectators, such a number is not likely to attend ; but when we consider that there are 2500 performers, it may often happen that the hall would contain, including the performers, some 10,000 persons in all. Even then the difficulty would be that of warming rather than of ventilation, for 10,000 people would still enjoy about 3000 cubic feet of air each. It is therefore important to note how the warming is accomplished. For this purpose it has been necessary to lay pipes which have a total length of nearly ten miles. These pipes contain steam under pressure. They are in the flooring of the passages and in the walls, thus heating the body of the structure. Then, at various intervals, and especially in places where cold draughts are likely to occur, coils are placed which can be fed with steam from the

pipes, and a sort of damper enables the attendants to regulate the amount of heat the coils are to give. There are in all about 250 such coils. But this is not all; the large sheet of water, which is so useful to cool the building in summer, adds to the heat in winter. This water is warmed by the Rosher system. This consists of a system of steam jets which draws the water from the canals. The water is heated by the condensation of the steam, and is then injected back into the lake or canals through the bottom of the tank by "spreaders." Nine heaters are thus employed, and a systematic circulation of heated water established. The heaters have also each an air-valve by which air is forced into the canals, and this helps to keep the water fresh. By these means the temperature of this vast volume of water can be raised at the rate of 2° F. per hour, and is generally maintained at a temperature of 60° F. Once a fortnight, on a Saturday evening, the whole of the water is cleared out and the bottom of the tanks carefully swept. It then requires eighteen hours to fill them afresh with a constant flow through a nine-inch inlet pipe.

The great secret of the even and pleasant temperature that pervades this vast building is the fact that the system of warming is kept in full activity day and night during the whole of the season. It requires three days to warm the building, and then it is never allowed to become cool again. This is the secret of true comfort, and the reason why houses in cold climates—Russia, Canada, etc.—are much warmer and more comfortable than in such moderate climates as that of England. At Olympia the heat is, if anything, higher in the passages than in the auditorium, and the heat is maintained day and night. Such is also the case in a Russian house; but in an English house the passages, hall, staircase, etc. are rarely if ever heated, and in the rooms the fires go out at night. Thus there is no uniformity, but draughts and constant changes of temperature in different parts of the building. At Olympia, in the huge auditorium between the spectators and the stage, there is a vast surface of warmed water which constitutes an excellent medium for retaining and distributing heat in a slow and uniform manner. The dry and unwholesome air that is the consequence of overheating and the foul air that results from overcrowding and inefficient ventilation are dangers that too often prevail in places of amusement. The absence of any such inconvenience and danger has been not the least of the attractions which Olympia offers to the public.—*London Lancet.*

Crowded Schools as Promoters of Disease.

Under the title, "Crowded Schools as Promoters of Disease," Dr. Henry Dwight Chapin sets forth in the *Forum* (together with remedial suggestions) the alarming conditions which he has found to exist in many of the public schools in New York :

"(1) Many of them are overcrowded, with the result that individual classes are too large, especially in the lower grades. The rules of the New York Board of Education allow one teacher to fifty pupils in the primary schools, and prohibit any one class from containing more than seventy-five pupils. Under this system one teacher may be obliged to do the foundation work in a class numbering from fifty to seventy-five children. How sixty little children can be properly taught in one class is a problem in physiology as well as in psychology; for the subject of overcrowding is one of great importance in respect to their health. No public school building should be constructed that will accommodate more than eight hundred or one thousand children, several buildings being put up, if necessary, to house larger numbers; for the massing together of so many in one place cannot but favor insanitary conditions which are sure to induce ill health, and particularly the spread of infection.

"(2) The ventilation is often extremely defective, and the cubic air-space allowed to each pupil is insufficient. In the three lower classes of the primary schools, the prescribed allowance of space to each pupil in New York is 70 cubic feet, in the three higher grades 80 cubic feet, while in the four lower grades of the grammar classes the allowance is 90 cubic feet, and in the four higher grades 100 cubic feet. The Board of Health requires that in tenement houses the allowance shall be at least 400 cubic feet, and, in some cases, 600 cubic feet to each person. Four hundred cubic feet are required for each lodger in the lodging houses of New York City. With a low allowance of cubic space to each child, there is no suitable way in the older buildings of letting out the exhausted air and substituting fresh air in its place. It is obvious that even with a generous allowance of cubic air-space, if there be no way of constantly removing foul air, a room full of children will soon become close and stuffy. Proper mechanical appliances are needed, therefore, to keep the air of these school-rooms pure by affording means of a constant exodus of the foul air and a steady supply of fresh air.

“This is a problem that has been solved by sanitary engineers who can accurately estimate the methods of supplying so many cubic feet of fresh air per hour to each individual in a room.

“(3) The light is bad in many class-rooms, especially in the lower grades. Most of the primary schools in New York are situated in the lower and inferior parts of grammar-school buildings, which are closely surrounded, in many cases, by high structures. The upper stories of the school-buildings may get sufficient light, but the lower rooms are often comparatively dark, and gas has to be more or less constantly burned. The strain to which the children's eyes are subjected by artificial light, or by conflicting lights, cannot but result in weakening them. The importance of this aspect of the question will be realized when we consider the increase of faulty accommodation and various other eye defects in little children. The relation between the source and intensity of the light and the position of the children should always be carefully considered: no seat should ever face a window or other source of light.

“(4) Many of the class-rooms are not provided with proper furniture. The children are often forced to sit in constricted, uncomfortable positions, especially when at work. When we consider the tendency to slight degrees of spinal curvature in children, it is seen how important it is that chairs and desks should be especially constructed with reference to their size and development. In some cases the benches are too high for the smallest children, so that their feet are unable to touch the floor. This attitude tires the back, and they may try and rest themselves by stretching their legs to the next bench. Every child should have a single seat and desk for itself, regulated according to its size. Children should not be seated in a row, or at least not closely enough to touch one another. Slates should be abolished, not only in the interest of cleanliness, but because of the danger of their becoming infected by disease-germs, and hence spreading contagion.

“Finally, in many schools there is no proper place to hang wraps and cloaks. Some of the class-rooms have narrow ward-robcs at the back where clothing is shut in; in others the outer garments are hung directly upon hooks in the wall. Damp and dirty outer clothing should never be kept in a school-room crowded with little children, for in case any of these articles are infected by germs of disease, especially of scarlet fever and diphtheria,

many of the adjacent garments are liable to be infected. This is a subject of great importance in regard to the spread of contagious diseases among the poor. No better rough incubator of disease-germs could be desired than a small, closed, unventilated wardrobe on a stormy day, packed with the wet and soiled outer clothing of children during the school hours. Proper drying and ventilating rooms should always be provided.

"While the newer public school-buildings in New York conform, generally, to hygienic rules, the older structures, which are mainly in the poorer districts, are, most of them, in a bad sanitary condition. The life conditions of thousands of poor children in tenement houses are bad enough. It is at least the duty of our cities to see to it that their bad environment is not continued in the schools. What is needed is a more constant and regular sanitary oversight of the schools by experts in hygiene. When we appreciate the importance of school hygiene in relation to a proper and symmetrical development of child-life, we shall give this subject the attention and thought that its importance demands. Boards of Education and trustees should be recruited more largely from the ranks of physicians and scientific men."—*Review of Reviews*.

Candy from a Hygienic Stand-Point.

D. M. Hazen thus writes to the *Healthy Home*: 'The basis of nearly all good candy is sugar. When one listens to the wholesale condemnation of candy-eating, so commonly heard from those supposed to be posted on matters pertaining to good health, it should be remembered that their diatribes are simply directed against the use of sugar, and the essential weakness of their case becomes apparent.

It is undoubtedly true that candy-eating often produces injurious results, but so sometimes does beefsteak-eating, or any other indulgence in improper quantities or at improper times. The only fair objection to the use of candy is that it is so attractive to the taste that there is frequently a very temptation to eat too much. But the same objection might be urged against the employment of a good cook whose skill makes common viands unusually palatable. It is a fair statement of the case to say that pure candy, at proper times and in proper quantities, is not injurious, but rather a valuable strength and heat-giving food.

Adulterations.—Most people will be surprised at the state-

ment that very little adulterated candy—that is, candy containing harmful ingredients—is now sold. This does not, however, mean that all candy is of equal purity or quality. But the low price of sugar and the earnest efforts of the National Association of Confectioners has, by removing temptation and making adulteration dangerous, brought about such a condition of affairs that nearly all candy now sold is safe to eat.

Very little terra alba (white earth) is used nowadays, and flour, glucose, and various cheap flavorings and colorings are used in cheap goods and by some manufacturers, the dangerous days when mineral pigments, such as yellow and orange chromate of lead and green arsenite of copper, were used for coloring confectionery seem to have passed on. So, while methods are still used to cheapen the product, there is very little really dangerous material incorporated into the candy of to-day.

My own business has been the making of high-grade and pure candies, so I am not as well informed on means and methods of adulteration as might perhaps be expected. But I know that no reputable manufacturer will allow adulterations with dangerous substances. Only recently, I found that a certain gelatine used in making wafers was bleached by a lead process. It produced the beautiful whiteness much to be desired, and the quantity of the poisonous material was infinitesimal, but I stopped its use at once, and any maker of established reputation would have done the same.

The National Confectioners' Association offers \$100 reward to any one who will buy and send to its officers a small sample of confectionery that is injuriously adulterated; and the *New York Confectioners' Gazette* duplicates the offer. These propositions tend to make the sale of poisonous candy dangerous, as a conviction would not only result in fine and large expense, but would stop further sale of the goods of that manufacturer.

When Danger Creeps In.—The chief articles used to cheapen candy are flour, starch, and glucose, all harmless of themselves. There is much less temptation to use glucose than formerly, as it costs nearly 3 cents a pound brought to a specific gravity of sugar, while sugar is, at this writing, only about $4\frac{9}{16}$ cents. Dangerous substances are more apt to be incorporated through the colorings or flavorings. Some chocolate is colored with burnt umbar—really adulterated with so much paint—and can hardly be beneficial to the digestion. I, myself, use the pure goods from

the Walter Baker Works. Cheap flavorings are not usually poisonous, though I should hardly advise a person to swallow a large quantity of any coloring. Even to swallow a teacupful of molasses at one time would be apt to make a man sick. I find Burnett's flavors and colorings very satisfactory and use them exclusively. They are guaranteed to be perfectly harmless, and of vegetable origin.

The Way to Eat Candy.—I think much of the outcry against candy is the result of wrong methods of use. It can often be safely taken at meal-time with good results. Scientists say that the food value of sugar is very great. A pound of sugar contains much more energy and power to support animal life than a pound of meat. If candy is taken under such conditions that it will not derange the digestive apparatus, it is perfectly wise and rational to be a candy-eater.

In the Bedroom.

The light iron or brass bedstead, with a mattress that can be easily aired, deserves its present popularity from a hygienic standpoint.

The walls of a sleeping-room should be hard-plastered and painted. If paper is used it should be of the washable, non-absorbent quality which is seen frequently nowadays in bath-rooms.

Fresh air and sunlight are indispensable to the healthful bedroom. Alcoves and recesses for beds are objectionable, unless there is sufficient space for a free circulation of air all around them.

Protect the mattress by laying over it an old blanket, which is far better than a sheet, because, being woollen, it absorbs perspiration without giving a chill, and also can be aired more easily than cotton.

Feather pillows should never be exposed directly to the sun's rays, as they melt or soften the oil in the feathers and frequently cause an unpleasant odor. The pillows should, however, be aired and beaten with a light cane.

Physicians claim that sleep is more refreshing in a darkened room, therefore it is best to have inside shades of dark green holland under the ordinary shades. These are more easily adjusted than blinds. It is well to accustom children from infancy to sleep in the dark.—*Congregationalist*.

Weaning the Baby.

The weaning of the infant is the next point to be considered, and for this again no definite law can be laid down. Between the ninth and the fourteenth month is the rule usually given, and a year is about the average. A variety of causes may necessitate weaning at an earlier date. The mother's milk may become scanty or of poor quality, as evidenced by deterioration of the child's health; the mother may also become ill and unable to nurse. The appearance of menstruation is considered by many persons to be the signal for weaning; and, while it is true that this may be required, it should not be hastily done. The condition of both child and mother should be carefully watched, and if neither seems to suffer, and the baby appears to digest its food properly and to be well nourished, the mother may continue to nurse it. Sometimes the menses appear once, and then disappear again for several months; it would be a pity to deprive the infant of breast-milk in such a case, wherefore let nothing be done in haste.

Pregnancy, however, as a usual thing, will necessitate weaning. Some women nurse their children for two or two and a half years, believing that they cannot become pregnant during lactation. This, however, is a great mistake, and often results in the suffering of three people,—the mother, who has to bear the strain and exhaustion of nursing one child and carrying a second; the first child, who is fed upon milk deficient in quality, and the second child, who is carried by an exhausted mother, when it has every right to expect an heritage of the utmost strength which can be given to it, and intra-uterine nourishment of the best quality. Weaning should, if possible, be a gradual process. It should also not occur during teething, nor during very hot or very cold weather. The eight incisor teeth usually appear at the twelfth month, which may be taken as an indication that the child is ready for something stronger than milk, which should, however, continue to be the chief feature of its diet for many months to come. At first, a little bread and milk may be given instead of one of the regular breast nursings, or a little hominy, oatmeal, or mush in milk. Veal, mutton, and chicken broths may be added later, and beef-tea which should contain bread or rice, because in itself it is not nourishing.

The following dietary has been given for a baby which has

been weaned after it has the eight incisor teeth and before the eight molars appear :

"First meal, 6 A.M. : A cup of milk with cream biscuit, or a slice of buttered bread.

"Second meal, 8 A.M. : Stale bread broken and soaked in a tumblerful of rich milk.

"Third meal, 12 M. : A slice of buttered bread with about half a pint of weak beef-tea or mutton or chicken broth.

"Fourth meal, 4 P.M. : A tumblerful of milk with crackers or a slice of buttered bread.

"Fifth meal, 8 P.M. : A tumblerful of milk with bread or crackers."

The child should not be wakened from sleep to be fed, and if it be hungry before the accustomed time, it should be given its food. When the sixteen teeth have developed, the following is substituted :

"First meal, 6 A.M. : Bread or crackers with half a pint of milk.

"Second meal, 8 A.M. : A tablespoonful of oatmeal, cracked wheat, or corn-meal mush with milk and a couple of slices of buttered bread.

"Third meal, 12 M. : Bread and butter, milk, and a soft-boiled egg.

"Fourth meal, 4 P.M. : A piece of rare roast beef to suck, mashed boiled potatoes moistened with dish gravy, bread and milk, and a small portion of bread, jelly or farina.

"Fifth meal, 8 P.M. : Milk and bread and crackers ; or give the fourth meal at 3 P.M. and the fifth at 6 P.M., so that the child may be put to bed by 7 o'clock."

Baby's Bath.—The baby's bath should be given daily, with the regularity of clock-work ; nothing so promotes the necessary activity of the skin. The water should be warm in early infancy, and as summer approaches it can be gradually and almost imperceptibly cooled, until finally a cold bath can be taken and enjoyed. This cold bath will do more to prevent the taking of colds than almost any other measure that can be devised, besides laying the foundation for a habit conducive to health and vigor. If, after a time, and in spite of rapid friction of the skin with hands and towel after the bath, it is seen that the child shivers, is pale and blue about the lips instead of being in a healthful glow, the cold bath must be stopped and the body be sponged

with cold water, drying each portion before the next is washed. Should this not have the desired effect, warm water will have to be used. The brisk and thorough drying is an important part of the bath,—a soft towel may first be used, and then the hands; if skilfully managed, the child will enjoy it, and even, when old enough, join in it with his own hands, which will add to the benefit to be derived by joining active to passive exercise.

Some one once made the remark that “many children were washed out of the world,” and the phrase caught the popular fancy, especially of the indolent and not over-neat, and has been the justification of much neglect in this particular. The daily bath is a necessity to perfect health; and even were it not, the marked difference in attractiveness to sight and smell between children who are carefully treated in this respect and those who are not would render it desirable. An unbathed child has a peculiarly musty odor, perceptible to all who approach it, with the exception, perhaps, of those who are always with it, whereas it is the privilege and right of babyhood to be as fresh as a rose and as sweet. “Bathe the baby every day!” exclaimed a father in one of the New York tenements, “why! that would kill it!” And the same horrified parent fed the child daily upon beer instead of milk!—(“Health Notes for Young Wives,” by Dr. Aimee Schroeder.)

The Danger of Small Wounds.

Many lives are lost each year in consequence of the lack of a little common sense about simple cuts and wounds of the hands or other parts. Several cases have been recorded in our newspapers of inquests on persons who have died from blood-poisoning from small cuts on the hands. A man, for example, while working at his trade, or even while cutting a piece of bread, receives a cut on the hand; it scarcely calls for notice; anything is good enough with which to stop the bleeding, and the small wound is left to take care of itself. As long as wounds, however small, remain unhealed, the risk of contracting blood-poisoning will always be present. Cuts should have some dressing, vaseline answering in most cases, and be tied up in linen; or, at least, have court-plaster on till the skin heals. By the way, court-plaster should never be wet by the lips to convey acid saliva or germs from the mouth. To be perfectly safe, plaster should be kept in wax paper, and wet in boiling-water.

An Odd Tale of Mumps.

A friend of ours went not long ago to call upon an acquaintance in this city who is a firm believer in the doctrines and practices of Christian science, so-called. While the two were in the midst of a pleasant conversation, the door opened and a little child poked her head into the room. The visitor could not help noticing that the child's face was swollen to the degree of hideous distortion.

"Mercy me!" cried the visitor; "what's the matter with that child?"

"There's nothing the matter with her," said the mother, stiffly; "positively nothing at all."

Then, turning to the child, the mother said, "Run right back to the nursery and stay there." But the child did not want to go; she continued to hang around the door, peeping into the room in a furtive way.

"Do you pretend to tell me there's nothing the matter with that child?" cried the visitor. "Why, just look at her face swelled to the size of a pumpkin!"

"No," insisted the mother, sternly, "there is positively nothing the matter with her. She simply has a belief of the mumps."—*Chicago Record*.

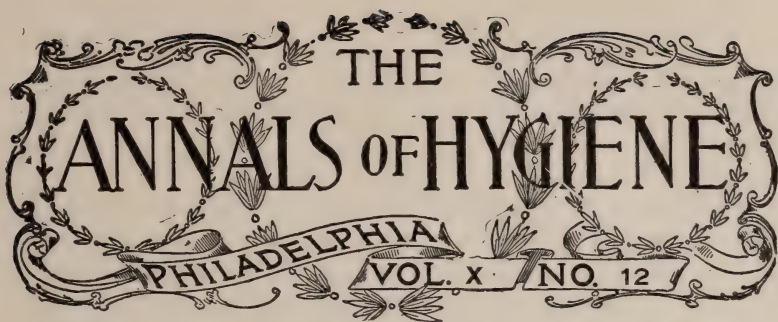
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COMMUNICATIONS.

Philadelphia Water-Supply.

BY FRANK J. FURTH, ESQ.,

Philadelphia,

Chairman of the Citizens' Committee on Improvement of Water-Supply.

THE agitation of the past few years has resulted in a clearer understanding on the part of the citizens of Philadelphia as to the conditions attaching to the city water-supply, and the possibilities of improving its quality so that it may be more agreeable to the eye and wholesome in use.

It is now recognized as an established fact by a large majority of the citizens, and by the city authorities, that it is a practical impossibility to obtain a permanently pure and satisfactory water from any available new source of supply. All agitation in this direction merely diverts attention from the kind of improvement that is practically possible in the near future, and thus causes a delay in action by the city authorities.

This generation cannot by any possibility enjoy an abundant supply of wholesome water from any new source.

It remains to determine what may be done in the way of purifying the waters of the Schuylkill and Delaware Rivers, on which we now depend.

The city has constructed many large reservoirs within its limits, primarily for storage, and incidentally for subsidence uses. In both directions these reservoirs are very valuable. Neither in Philadelphia, however, nor in any other city or town,

having to deal with substantially similar water conditions, has subsidence in reservoirs been found to be a permanent or thorough solution of the problem of purification of a city water-supply that comes from a contaminated source.

Filtration is the best known method of purifying contaminated water, and by its use it has been found possible to obtain from a contaminated source water that is both clean and wholesome. This is not an isolated result, it is the experience in innumerable cities and towns in Great Britain, on the Continent, and in the United States and Canada.

It is beyond dispute that any one of a number of methods of filtration will remove all sedimentary matter, while certain of the methods make it possible also to remove stain, such as is found, for example, in the water taken from cedar swamp sections.

The demand that science now makes upon filtration methods is not alone for clean water, but it is for a bacteriological removal that will insure a water free from harmful disease-germs. In reply to this demand it can be shown at many places that the sickness and death-rates from cholera, typhoid fever, and like diseases, have been greatly reduced wherever filtration has been resorted to. It can be further shown that the natural sand filters in use in the prominent European cities have an accurately determined and, from a scientific point of view, entirely satisfactory record of bacteriological removal. It is true these filters of the best European type require a large surface acreage and must be intelligently managed to produce the best results, but no probable investment cost or difficulty in management should deter the city of Philadelphia from doing its manifest duty in this important matter of giving its citizens an abundant supply of clean and wholesome water.

American methods differ from European methods in filtration as they do in many other directions. The enterprising American does not allow himself to be bound by precedent, and a method must have some more substantial merit than the mere fact it was used by his father and grandfather, to insure his continuing respect. He is constantly on the alert for improved methods, and emerging from many mistakes he brings forward substantial progress.

In this country the aim is economy in first cost, rapidity of service, and a practical rather than theoretical efficiency in result.

While the natural sand filter is the standard in Great Britain and on the Continent, what is known as mechanical filtration has invaded and taken possession of the United States. The natural sand filter at Lawrence, Mass., erected and operated under the supervision of the Massachusetts State Board of Health, is the only approach to a natural sand filter of the best European practice that is to be found in this country. It filters the water for a small town of 50,000 inhabitants. The mechanical filters of three or four standard types are purifying the water-supplies of hundreds of cities and towns in the United States and Canada, and their number is being increased daily. A careful investigation shows that their results are generally satisfactory in yielding clean water and in improving the health of the communities where they are used. Inquiry of leading physicians in cities and towns where alum filters are used has resulted invariably in assurance that the use of alum in coagulating the impurities in the water has been beneficial, and has not in any known case been in any way harmful. Here are some clearly established facts,—

(1) Natural sand filters are and have been for years satisfactorily purifying city water-supplies abroad, and at Lawrence, Mass.

(2) Several mechanical filter systems are and have been for years satisfactorily purifying city water-supplies at many cities and towns in the United States and in Canada.

(3) It is claimed the mechanical systems are as efficient as the natural sand filters and are much less expensive.

(4) It is an established fact that filtration is the only recourse at present available by which the Philadelphia water-supply may be purified and the sickness and death-rate thereby certainly reduced.

What is the plain duty of the mayor and city councils under these existing and well-understood conditions?

Certainly they should immediately inaugurate a comprehensive scientific investigation into the merits of the various methods of filtration, natural and mechanical, and determine definitely which, if any of them, yields satisfactory results under one existing local water conditions. It is entirely possible to solve this problem within six months' time, at a very moderate cost, and so that the results will be beyond dispute.

The city can then settle upon a definite policy to govern its water department. This policy, it is confidently asserted, should

be to increase its reservoir capacity for storage and subsidence, and to erect, as rapidly as funds can be found for the purpose, the type of filter-plant that investigation proves to be best for our use here. No more important work can engage the attention of the city authorities and command the city money.

What shall we do with the Old Well?¹

BY HARVEY B. BASHORE, M.D.,

West Fairview, Pa.



JUST about one-third of the population of the Eastern States, and a great part of the population of the whole country, depend upon shallow wells for their supply of drinking-water. That these old wells will transmit disease is no longer to be doubted, and the fact is established by practical experience. Cesspools and privies have almost everywhere grossly contaminated the soil, and as a well drains a cone-shaped area, the diameter of whose base on the surface is anything from 100 to 200 times the depth of the well, it is almost invariably placed within the drainage of one of these filth-bearing spots. When conditions are such as these, is it any wonder that well-water transmits disease? Rather a wonder is it that the result is no worse. For instance, a passing stranger or a visitor, ill with diarrhoea, stops in a town. The discharges, loaded perhaps with typhoid germs, are thrown into a privy vault, or, what is worse, are buried a foot or so beneath the surface of the adjoining garden. In the fulness of time these germs have passed into a neighboring well, and numbers of the community suddenly become sick. Or it may be that milk-cans washed with this water carry the fatal germs to a neighboring hotel. It is the old, old story, and Providence gets the credit in place of human negligence.

I just happen to think of one small town in Pennsylvania where sixty out of eighty inhabitants became ill of typhoid, and eight died,—all because they had drunk infected well-water. A strange thing, too, frequently noted is that the most popular well in a district is likely to be the one most contaminated. This is

¹ From the Medical News.

probably due to the fact that the constant pumping consequent upon its popularity keeps the water at so low a level that the drainage of the well is increased ; for the ground-water tends to maintain a certain level, and a diminution at any point increases the drainage about that point.

Although many epidemics have been traced to the use of old wells, there might be many more, were it not for the fact that the infectious diseases require a specific germ for their origin, and until that is introduced contaminated well-water counts for little as a direct disease-producing factor ; but let a colony of germs gain a foothold in one of these filth-bearing places, and their growth, development, and propagation are simply matters of time. Let us take, for example, an old well at the corner of New Haven Green. For years this has been receiving the drainage of a filth-laden soil, but we have yet to hear of its being counted a factor in disease. Yet who can tell at what moment fatal germs may find a lodgement ? Surely he who drinks of this water has a two-edged sword over his head of which he never dreamed.

Still there are hundreds of just such wells scattered through the country, simply waiting to become infected ; but only typhoid breeds typhoid, and for the moment we are perhaps safe ; but, after all, we are not so safe as we may imagine, for it has been found that polluted water, although not directly causative of disease without the special pathogenic germs, still predisposes those drinking it to at least one disease,—typhoid fever.

What, then, shall be done with the old wells ? We all know that in the absence of a public supply deep tube-wells would be the best remedy. Many, very many people cannot avail themselves of this source of supply ; and the next best thing is to treat these wells after a method devised by Dr. Koch, which is effective, cheap, and greatly lessens the dangers arising from the use of well-water. An iron tube, two or three inches in diameter—with its lower end perforated—is placed in the centre of the well, and the surrounding space filled with fine gravel up to the highest point of water-level. This is then covered with sand to the top of the well ; and a pump attached to the end of the tube makes a very effective tube-well. All water, in passing through the layers of sand and gravel, is effectually filtered, and the nitrifying organisms change the filth into harmless nitrates. A filter-bed like this removes, too, from 80 to 90 per cent. of the bacteria, and greatly, very greatly, lessens the danger to which all are subjected who drink shallow well-water.

Hygiene of the Eye.¹

BY JOSEPH A. MULLEN, M.D.,

Houston, Texas.

ADULT LIFE.



WHILE in the past the preponderance in volume of medical literature upon the subject of the hygiene of the eye has been devoted almost entirely to the care of the eyes in the young, it is but sanguine to anticipate, judging from results in other departments of medicine, that there will happily be an appreciable swinging in the tide of the enormous amount of material, and that we may soon hope to witness as much time and energy expended upon the health of the eye in the adult as is being given to vision of the juvenile.

The disparity in the interest evinced in these two subjects becomes at once apparent as the result merely of reference, and the explanation of the same as manifest as is the neglect itself.

The hygienist and prophylaxist are always hopeful that when suggestion and advice are offered to parents and guardians for the prevention and relief, in the child, of inflammations, eye-strains, nervous reflexes, such as chorea (St. Vitus' dance), neuralgia, chronic inflammations of lids, etc., that such may be entertained and acted upon in the same humane spirit in which they were tendered, and the prevention and cure of the above-enumerated conditions thoroughly accomplished. Their efforts are directed and calculated to prevent these diseased conditions from arising, or, if they have begun, to stop them in their incipency, before any permanent damage has been done the eyesight or general health of the infant or child.

So frequently no appreciable results follow their most strenuous efforts, and the child or infant for whom so much has been advised grows to manhood or womanhood plus the inherited and acquired perversions of the different media of the eye, the former having escaped detection, or the latter engrafted themselves so insidiously, and both are consequently not remedied, or else they have been completely ignored, the parent or guardian knowing

¹ From the Texas Sanitarian.

full well the inevitable consequences to the child's health and eyesight if such criminal and inhuman negligence were permitted to go uncorrected.

Ofttimes all parents and guardians do not have the privilege or opportunity of, and sometimes not even the inclination for, seeking information upon such an important and necessary subject as the hygiene of the eye, or any other organ, for that matter.

The number who represent this class (the result of indifference and ignorance) of patients is enormous, as evidenced by those adults who present themselves for treatment of ocular disturbances inherited and acquired from vicious use of the eyes during childhood ; others who go from day to day suffering from reflex ocular and nervous derangements, as above enumerated, without ever suspecting the real cause of their headaches, inflammations of the eyes, etc., until perchance they are recognized by the oculist.

The *fin de siècle* youth and maiden are here referred to as synonymous with the adult, from the fact that so many are thrown upon their own resources for a livelihood, and are consequently dependent upon their own judgment,—this, to be sure, is more commonly the case in large cities.

Headaches are the most constant and persistent resultants of eye-strains. They "will out" at some period or other, occasionally remaining in abeyance until some sickness occurs to lower the general health, or the strains are so great that nature utters cries of warning, such as headaches, watery eyes, inflamed lids, general depression, nervousness, etc. They can be hardly mistaken for anything else other than that which they actually represent,—some defect of ocular stability. The eyeballs may become sore and tender ; direct light painful, or there are pain and sensitiveness of the ridge above the eyes, radiating at times to the temples, and occasionally invading the whole scalp ; the eyes become red and irritable in appearance, secreting an excess of tears running over the lids and down the cheeks, and bringing about frequent congestions of the lids which render them very susceptible of inflammations,—these symptoms frequently follow or are intensified by prolonged use of the eyes.

It may be well to add here that the faculty of seeing distant or near objects clearly and distinctly is not, and should not be, always considered as a criterion of normal vision, for there is a possi-

bility that this seeming good vision may be kept up by induced strain of the muscle of accommodation, and if headache or any irritated condition of the eye be present, it can be safely assumed that such is not healthy vision.

In this connection, also, it is in order to add that quite frequently an ocular headache is closely simulated by one arising from an entirely different source, being nasal in origin, which, if carefully observed, can be readily differentiated from the former, and found to occur independent of the use of the eyes and made worse by every fresh cold taken. Then, again, there are patients who complain of an inability to make use of the eyes for near work without experiencing great discomfort, pain, and watering of the eyes, and who have gone the rounds of oculists' offices in the hope of gaining some permanent benefit, but, alas, so often fail to get the much-desired relief. I have seen, within a short time, several such cases, on whom the removal of a portion of the soft (turbinate) bones of the nose entirely rid them of this great source of annoyance, and enabled them to read with ease and comfort.

Sunlight, without any exception, is always the best for seeing purposes, and should be free from cross-lights falling upon the open book, etc., preferably over the left shoulder.

The Kootznahoo Indians, of Alaska, have a very unique way of protecting their eyesight from the intense glare of the sun while fishing, by blacking their faces, the dark material used readily absorbs the reflected irritating sunlight.¹

Under certain circumstances, artificial light becomes absolutely necessary, and then the best should be selected and the more injurious discarded. The more white a light is the more injury it is liable to do the organs of sight, and for this reason electric light should be sparingly used, as its diffusibility is much inferior to gas, it will not travel around corners, and its shadows are dark. Light should not be *white*, but must be diffusible to insure ease and safety to the eyes. Reflected light is irritating and injurious, especially when it is concentrated, and reflected upon an open book and thence to the eyes, it causes the pupil to become smaller, and cuts off the necessary quantity of light in order to see distinctly, thereby precipitating eye-strain. The shade, instead of being adjusted around the light, should be worn over the eyes of the person.

¹ A summer in Alaska, by Frederick Schwatka.

The comparatively new light, known as the Welsback, is just the thing for illuminating purposes, but because it produces the complete combustion of the gas, and makes a too white light, it is rendered quite dangerous for constant eye use. This can be remedied, according to Dr. L. W. Fox, by adjusting a pink or arundel tint shade around its base.

Any one, whether he or she uses sun or artificial light, should have a window or door close at hand through which, at intervals, he or she can look at some distant object, preferably a green lawn or a border of trees, and if at night, into the heavens, to rest and relax the induced muscular contractions of the accommodative and straight muscles of the eye, the result of long application of the eyes for near vision; in this way the eyes can be rested as circumstances indicate.

Pupils in schools and colleges should be instructed to take advantage of these short eye-rests, which are as applicable to them as to book-keepers, type-setters, and all people whose avocations in life necessitate prolonged use of the eyes.

Dr. L. W. Fox advises that accountants, and all those who are constantly compelled by their business to use their eyes in adding long columns of accounts, etc., will find their labors rendered more agreeable and less liable to induce headaches, blurring of vision, etc., by inserting between the pages a sheet of tin, paste-board, blotter, or any other substance colored with neutral tints, such as blue, black, or green, the color being of such intensity as to be readily seen through the paper, producing a moderately colored leaf, the effect of which will afford a sedative influence to the much overworked eyes. Of course, the size of these eye-resting sheets can be easily made to conform to any book, whether large or small.

Reading in moving conveyances, whether carriages, street-cars, or trains, should be, for specific reasons, discountenanced, as it produces and keeps up eye-strains which can end in the production of some constitutional, nervous breakdown. The constant irregular movements of the railroad-carriage, etc., combined with the uncertain light, especially at night, make reading, under these circumstances, difficult and dangerous. Nor is it beneficial for persons riding in railway-coaches to face the engine and gaze, on a long journey, at the rapidly approaching scenery, as there is a forced contraction followed by a sudden relaxation of the small circular muscle of accommodation when the moving train

and object are almost opposite each other, preceding this there has been a fast increase in both accommodation and convergence (the action of the internal straight muscle of the eye bringing the latter towards the nose) to keep properly focussed the rapidly approaching objects. This process kept up for some time cannot be otherwise than harmful to eyesight.

It is much safer and more agreeable for the eyesight of passengers to ride with their backs facing in the same direction in which the train is going, for the reasons that the accommodation and convergence are not subjected to the sudden relaxation and contraction of the muscles presiding over these functions, and that there is a more even and unstrained feeling experienced when this manner of riding is adopted ; besides the scenery is receding and not approaching.

There is a very common practice indulged in by a no small number of persons, of either lying prone upon their backs or abdomens for a long time, principally at night, in order to read newspapers, books, etc., and this, too, very often by poor illumination, assisted by the source of light coming either from the ceiling, floor, or chair, or, probably, table, some distance away. This mode of using the eyesight is neither elegant, comfortable, nor consistent with the laws of general health. The mere fact of the head being in recumbent position forces the flow of blood to the brain, and, of course, to the special organs emanating from it ; this, assisted by the prolonged use of the eyes under such adverse circumstances, causing congestion, is sufficient affront to inaugurate ocular headaches and all the disagreeable precedents of abuse of the eyes.

It cannot be considered wise or advisable for patients to indiscriminately "try on" glasses belonging to friends and acquaintances, who are perhaps suffering from "granular" lids or some other inflammations, which are readily communicated from one person to another, and which frequently resist well-directed curative efforts.

For like reasons men should not permit barbers to use the eye-screens that are so commonly employed to keep hair from getting into the eyes. It would be far better for the latter to occur than to have the deposition of some contagious eye-disease which may possibly ruin the sight.

Whenever possible always eschew the use of towels and soaps in the lavatories of hotels, etc., as they are frequently the means of transmitting diseases to healthy eyes.

Great care should be exercised in the selection of servants, and those members of the family who have inflammations of the eyes should have the care and treatment necessary for their cure, and precautions taken that they use their individual towels, etc., thereby preventing the communication of the disease to other members of the household.

Patients convalescing from a prolonged fever or other sickness should be very careful about the too early use of the eyes until such time as the general health and vitality are restored. The eyes have suffered from the ravages of the disease, and any strain thrown upon them during the convalescent period may disastrously weaken the vision.

Large and closely-repeated doses of quinine will produce complete or partial blindness, either temporary or permanent, depending to a large extent upon the size of the doses, their frequency, and the susceptibility of the person. The blindness, unfortunately too often, resists all forms of treatment; hence, just as soon as symptoms of impaired vision follow the ingestion of quinine in enormous quantities, the patient should immediately notify his physician so that no permanent injury is done to the eyesight.

Tobacco and alcoholic drinks are likewise apt to inflict permanent damage to vision, more particularly is this the case when they are both used in conjunction with each other.

The amount of tobacco necessary to cause partial or complete blindness varies, but it is a well-known fact that when hot "toddies," or cold ones for that matter, are repeatedly taken during the day, and at the same time tobacco constantly smoked, that sooner or later vision will suffer an appreciable decrease in acuity, and with it the faculty for distinguishing colors is obtunded or destroyed.

The former and latter are dependent upon the severity of inflammation of the optic nerve.

In conclusion, and to epitomize my articles upon this subject for the care and preservation of the eyesight, I can offer nothing better than the following rules:

- (1) 'Take all precautions that are necessary to prevent infection of the infants' eyes at birth.

- (2) If any inflammation should occur, parents must be cautious that it receives prompt and proper treatment.

- (3) It is the duty of parents to see that every child should

have an accurate eye-examination made before entering school, and all errors of vision corrected.

(4) Whenever possible, children should be sent to the kindergarten school.

(5) Avoid sudden changes from dark to brilliant light.

(6) Avoid reading when lying down or when mentally or physically depressed.

(7) Avoid stimulants and drugs which affect the nervous system, especially when they are known to exert an injurious influence.

(8) When the eyes are tired rest them by looking at objects at a distance.

(9) Be careful not to use the towels and soaps in public places and belonging to persons with sore eyes ; also do not use barbers' eye-screens.

(10) Always ride in railway-coaches with back towards engine; it is more agreeable and safer.

(11) Up to 40 years of age bathe the eyes twice daily with cold water.

(12) After 50, bathe the eyes morning and evening with water so hot that you wonder how you stand it ; follow this with cold water, that will make them glow with warmth.

(13) Old persons should avoid reading much by artificial light, be guarded as to diet, and avoid sitting up late at night.

(14) Do not depend on your judgment in selecting spectacles.

(15) Do not give up in despair when you are informed that a cataract is developing ; remember that in these days of advancing surgery it can be removed with little danger to the vision.

Food for the Young Folk.

At the Congress for the Protection of Children, sitting at Bordeaux, France, a resolution was adopted to the effect that artificial food should be forbidden in the case of infants under six months of age ; that from six months to twelve months of age the food should be milk with a little farinaceous material or the yellow of eggs ; and that from one to two years the diet should consist of milk, eggs, mashed vegetables, tapioca, and a little boiled fish. The feeding-bottle with India-rubber tubing was unanimously condemned.

Inebriety in Women.¹

BY ANDREW WILSON, M.D.,

London.



OF late days much interest has been taken in the topic which heads this article as its title. The *Daily Telegraph* started a discussion on the subject a short time ago, and, as is usual in such cases, a mass of opinions, suggestions, and propositions in the way of cause and remedy was elicited in the course of the abundant correspondence which ensued. Perhaps the discussion is only one phase of the inebriety question which is everywhere being "boomed" at the present time. There appears to have been an awakening on the subject of intemperance all round, and an earnest desire has been aroused once again in social history to get at the root of this great social evil, and as far and as quickly as possible to modify it or "reform it altogether."

The special phase of intemperance—that among women—has, of course, many very pathetic and heart-breaking phases of its own. First and foremost, there is the loss of self-respect, which is more to a woman than it is to a man. I say this advisedly, because I think it is probable that a lapse in any direction on the woman's part is attended with much more serious consequences than a similar slip on the part of the man. A woman's self-respect is her all. She is or can be damaged nowhere more severely than in her own eyes. The lowering of the standard of moral worth is to her an irreparable loss. She rarely recovers from the blow or event which she knows or thinks places her at a lower level than her sister-women. . . .

Physicians are commonly of opinion, expressed as the result of experience, that the reclamation and cure of a drunken woman is a task of extreme difficulty. They will tell you that for one man who pulls himself together and gets straight again, there are hundreds of women who are irreclaimable and incurable. I say the reason why the cure of inebriety in women is so rare depends on the fact that the loss of self-respect means so much more in the way of despair to the woman than it does to the man. And

¹ From the London Post.

there is another reason still. Society, which looks leniently upon the faults of men, judges with Spartan severity the slips of women. For this, women have to thank women. It is they who are hardest on the erring sister; theirs is the voice lifted loudest in her condemnation; theirs is the hand which points to the streets; and theirs the sentence which ostracizes their sister forever as a social pariah. The case of the man is very different. He is always treated, however many his faults, under a social first offender's act. When people talk, as talk they will and do, about the necessity for preserving intact the purity of society, they conveniently forget that there are two parties to be dealt with, and that the attainment of the social millennium is only to be accomplished by the condemnation of the man equally with the ostracism of his victim. But, as Rudyard Kipling says, "that is another story" altogether.

The recent discussion on drunkenness in women has elicited an opinion—I can hardly call it a fact—that inebriety is on the increase among females. Lady Frederick Cavendish, and other social reformers, boldly assert this opinion as true. The tipling of the East End gin-shop is said to be reflected in the *boudoir* of the West End. The craving for stimulants, it is held, follows upon the life of unnatural excitement many women lead, and this may possibly be perfectly true.

The question of remedy is perhaps as difficult of discussion as that of the whole drink-traffic or of prostitution itself. Personally, I scarcely see that abolition of the drink-traffic will better an evil which reaches far below the surface of things on which the public house stands. Limit licences, and you only increase a monopoly which, as things are, exists in full force. I do not believe legal measures alone will ever touch the root of drunkenness either in women or in men. They may palliate the evil; they can never cure it.

Regarding the question from the biological stand-point, one seems to get a little hope from the consideration that to remedy evils of our constitution we must work constantly, expecting to influence the living host by degrees and by small variations rather than by fits and leaps and starts. In every living species we find those who go to the wall; sad fact though it be, these represent the wasted lives,—the suppression of the unfit,—in a word, which clears the ground of those who cumber it. Are we, then, working unconsciously to a better state of things through all

this terrible sacrifice of health and hope and life? I would fain hope so, although the prospect, I admit, is depressing enough as it stands.

Agencies are happily at work around us which must influence the question of inebriety in time. Education is doing much, and example is perhaps doing more. The spirit of the time is in favor of moderation, abstinence, and a higher standard of life all round. I say so, despite the fact that Cassandras are warning us that society is rotten to the core, and that the worst days of Rome are fast being repeated in our midst. Perhaps all this is inevitable from the rate at which we live. Each day of Europe is really "a cycle of Cathay," and we must pay for the pace at which we go.

It seems absurd for us to expect that, in a complex system of civilization like ours, we should have perfection of life and living attained so quickly as philosophers of an ultra-hopeful turn of mind would expect. "Slow and sure" is the way of life all round; and surely we may look with some hopefulness to the decrease of inebriety among men and women alike, when education and like agencies have had time to make their mark. Meanwhile, if there is no panacea for the evil, there is no need to despair. While we wait for better things, no man need find in waiting an excuse for not putting his hand to the plough, or for delaying to work as best he can for the bettering of our life as it exists to-day.

The Prevention of Small-Pox.¹

BY T. M. BAIRD, M.D.,

Hot Springs, Ark.



HAT vaccination is the only sure preventive of small-pox very few doubt, but the spread of this disease throughout the United States during the past year has fully demonstrated the fact that more stringent precautionary measures are necessary to prevent the appearance and spread of small-pox in our midst. It seems strange to me that in this enlightened age an Anti-Vaccination Society is in existence. Any one who has had to deal with the disease would certainly not join any such association, whose

¹ From the Hot Springs Medical Journal.

object and aim seems to be the prevention of the stamping out of this dread pest. Vaccination should be performed at least twice on every individual,—to wit: at the age of two or three months and at puberty, and should small-pox appear in the neighborhood, it is much safer to resort to revaccination. The following is from the report of Dr. Cyrus Edson, chief inspector of contagious diseases, New York Health Department, 1890: “During over nine years of service in the Health Department of New York I have never seen a case of small-pox in a person who had been vaccinated successfully within five years, and the number of cases I have seen mounts into hundreds.”

That small-pox does sometimes attack a person who has been previously successfully vaccinated once, or even several times, must be acknowledged; but that vaccination confers immunity in a large majority of cases must also be acknowledged, even more than a previous attack of small-pox, as will be seen from the following statistics taken from Quaine’s “Medical Dictionary.” The following table published some years ago, based on an examination of 5000 cases, gives the result of Mr. Marsen’s observations, extending over twenty years:

Classification of Patients affected with Small-Pox.	Number of Deaths. Percentage in each Class respectively.
(1) Unvaccinated	35
(2) Stated to have been vaccinated, but having no cicatrix	23.57
(3) Vaccinated—	
(a) Having one vaccine cicatrix	7.73
(b) Having two vaccine cicatrices	4.70
(c) Having three vaccine cicatrices	1.95
(d) Having four or more vaccine cicatrices	0.55
(a) Having well-marked cicatrices	2.52
(b) Having badly-marked cicatrices	8.82
(4) Having previously had small-pox	19

Again, in speaking of the mortality of the disease, he gives the following statistics taken from 11,724 cases, treated in different hospitals,—good marks: 4477 cases, 188 deaths, mortality 4.1 per cent. Indifferent marks: 7247 cases, 799 deaths, mortality 11.0 per cent. Authors generally agree that the mortality of small-pox in the unvaccinated is from 30 to 40 per cent.

Can any one fail to believe in vaccination after reading the above statistics? But should a case appear in our midst, what are we to do to prevent its spreading the disease all over the com-

munity? First, report the suspicious case to the proper authorities that a rigid quarantine may be maintained over the suspected case and every person who has in any way come in contact with the case. Complete isolation of all suspects and compulsory vaccination of every inhabitant of the place will soon stamp out the disease. Compulsory vaccination cannot always be practised; we should then be doubly precautions to prevent contagion being carried from the infected house. Have a guard on duty, day and night, to prevent any person entering or leaving the house. Of course, it is much better to have all diseases of a contagious or infectious character taken to a hospital specially erected for that purpose, but we frequently cannot remove the patient for various causes, and must treat the case at home. It must be remembered that small-pox is contagious from the first appearance of fever, until the person has thrown off the last scab and has been thoroughly disinfected. Consequently, any one who has come in contact with the disease, even at its onset, should be held in quarantine from fourteen to twenty days. Every person who has been in contact with the disease, should be vaccinated as soon as possible, for the delay of a day, or even an hour, may mean a fresh case of small-pox. Do not think that because they have been exposed it is not necessary to vaccinate. I have seen several persons vaccinated after they had been exposed to the disease several days develop a typical vaccine vesicle that ran the usual course. Had they not been vaccinated, they would very likely have contracted the disease; we may say that it was almost a certainty that they would have done so. In the sick-room the utmost cleanliness must be preserved; all excreta, soiled linen, etc., should be thrown into a strong disinfecting solution and taken from the room, then burned, or buried with lime thrown over them. Sheets, moistened in a strong carbolic solution, should be hung in front of all doors and windows, that the isolation may be more complete. The attending physician should have a rubber suit and cap that will envelop his entire person; after leaving the sick-room he should go to some other room and wash his face and hands in a carbolic solution. He should associate with other people as little as possible, and under no circumstances should he perform a surgical operation or attend a labor case. When a patient has become free of all scabs, he should be scrubbed with warm water and soap until perfectly clean. On the following day he should be given a bichloride bath, have a

sheet wrapped about him and taken to another room that had previously been disinfected and fumigated. On the third day he should take another bichloride bath, given clean clothes and discharged. The tub and bath-room should be disinfected after each bath. The next thing to be thought of is the disinfecting and fumigating of the infected house and its contents. All clothing, bedding, etc., that are not wanted, should be burned. The rooms and hall, if they are papered, should have it torn from the walls and burned. The clean walls should then be deluged with a strong solution of bichloride of mercury, and the floor scrubbed with the same solution and soap. Mattresses and clothing that are to be saved, can be fumigated with chlorine gas, or, what I prefer, the fumes of sulphur for at least twenty-four hours. The contents of mattresses should be strewn about the floor and dress goods, etc., hung on the walls; each room of the house should also be subjected to the fumes of sulphur, after which the house may be turned over to the owner with the assurance that it is free from infection. Should the case die, we should immediately envelop the body in a sheet wet with a strong solution of carbolic acid, and place it in a coffin at once, and as soon as possible a private burial should be had; no one being allowed to attend but those who are necessary to inter him. Lime should be spread thickly over the coffin, and I think it better to cover the corpse in the coffin with lime, that it may be burned and prevent any future danger from disinterment. The grave should be five or six feet deep, and the dirt should be packed in the grave.

There are many points to be thought of in preventing the spread of small-pox, but were I to mention them all, this paper would become too lengthy. Certainly, some one is to blame for the wide spread of small-pox in this country last winter, and I wish to impress on the profession the importance of vaccination and strict quarantine to prevent the recurrence of this disease in our midst. The points to be remembered are: Vaccination, a strict quarantine, and thorough disinfection and fumigation.

Canned Goods.

Canned fruits and vegetables should be opened an hour or two before being used. In this way they become richer, as the oxygen of the air driven off at the time of sealing is restored to them.—*Popular Science News.*

Filters.¹

FAITH in filtration is growing in one direction while losing ground in another, and it is the disturbing influence of bacteriology which is responsible for the alteration of the landmarks which chemistry had provisionally defined. Filters are supposed to purify water in at least three different ways: by straining off suspended particles in a mechanical fashion, by oxidizing and destroying the organic matter in solution, and by removing some of the more objectionable of the dissolved mineral substances. Hence filtered water is, or ought to be, clearer, brighter, and organically purer than it was before filtration, and freed from such impurities as lead in solution. So far we are on perfectly safe chemical ground, and beyond question all this can be done if the filter is of a proper kind and properly looked after. But of late we have come to recognize that the most serious danger of all is dependent upon minute organisms, which must not too hastily be supposed to rank, *qua* filtration, either with the coarser suspended particles, which are intercepted mechanically, or with the dissolved organic matter which is oxidized. It has, therefore, become necessary to take our bearings afresh, and to find by experiment whether filtration under given conditions does or does not afford security against the pathogenic microbes of enteric fever and the other water-borne scientific diseases.

Water companies deriving their supplies from large rivers have to face the fact that among the impurities carried by the stream to their intake is sewage from towns and villages higher up, and that in all human probability a consignment of typhoid sewage will now and then arrive with the rest. It is sought to meet this risk by the same means which serve to purify the water in other respects,—namely, by filtration through sand, coupled, of course, with the exclusion of the turbid and impure flood-waters as far as possible. The water passes slowly down through the filter-beds, leaving its suspended impurities on the surface of the sand, and losing much of its organic matter in transit, and comes out bright and palatable, if all has gone well. By degrees the surface sand becomes choked, so that the water percolates more and more slowly, and, after an interval, which varies with the character of the water, it is necessary to cleanse the filter,—

¹ From The Practitioner.

that is, to skim off the superficial layer of sand and replace it by clean material. Not long ago it was thought—very naturally from a chemical and physical stand-point—that this cleansing process was an unmixed benefit, and that the oftener it was repeated the more efficacious must be the filtration. But this, as it now appears, was reckoning without the microbial host. Sand filtration, under favorable conditions, can remove nearly all the microbes present in the unfiltered water. The sterilization is never quite complete, for there are harmless aquatic microbes which flourish even in the deeper layers of the filter-bed itself, and these can scarcely be prevented from passing into the filtrate. The conditions of efficiency are, first, that the speed of filtration shall not exceed a certain maximum,—about four inches per hour, or two gallons per square foot of filter-area per hour; and, secondly, that the sand surface shall *not* be too fresh. At first, in a “clean” filter-bed, the water-borne bacteria pass freely through the comparatively coarse interstices of the sand and appear in large numbers in the filtrate, but presently a gelatinous organic film forms on the surface, which, while lessening the freedom of percolation, forms a barrier against the passage of microbes, including those which are pathogenic. Possibly the latter perish under such conditions in the struggle with saprophytic bacteria; but, at all events, they do not pass through into the effluent water.

So far as straining and chemical purification are concerned, newly-cleaned filters are excellent, but if they are to be relied on for arresting the germs of disease, a period of seasoning must be allowed for the formation of the protective film before the water is safe for distribution for drinking purposes. And, further, the film ceases to be protective if the filter is overtaxed as regards speed. The efficiency of filtration, from this point of view, may be determined by counting the number of microbes of all kinds in the filtrate, which should not (according to Koch) exceed one hundred per cubic centimetre. This is, of course, an empirical standard, based upon experience gained at Hamburg and elsewhere, and is irrespective of the number present in the original water.

These conditions, it may be thought, present no great difficulty. It is easy to regulate the speed, to allow time for the film to form, and to watch the filtrate bacterioscopically, if on those terms an effective barrier can be erected and maintained against

the passage of enteric fever from the Thames, Ouse, or Dee into the water-mains of London, York, and Chester. But there is a further condition implied, that the efficiency is to be uninterrupted, and herein lies the difficulty. Averages will not do, for the same reason that makes them inadmissible with regard to the strength of fortifications or flood-gates. The strength of the whole is the strength of the weakest point. The barrier is broken if one filter out of a dozen goes wrong, although the mixed filtrates may appear all right.

Observations of speed alone do not afford the assurance of safety, for when the surface of a filter is clogged, water passing freely through fissures may escape proper filtration, and yet not raise the yield of effluent to a suspicious volume; but under such circumstances, the number of microbes would be so excessive as to give ample warning of danger, if looked for. Leakage of this kind may be often repeated or long continued without impairment of the public health if no typhoid germs happen to be carried to the damaged filter, for they are by no means always present in the waters of polluted rivers. The danger is that the accident of their presence there may now and then coincide with the accidental breach in the fortifications, so that the way is open for them to pass into the water-mains and thus to the consumers. If this should happen, and give rise to an outbreak of enteric fever upon a large or a small scale, there would be very little prospect of verifying the channel of infection by finding the pathogenic microbe in the water, for two or three weeks would elapse after the accident before the mischief could be recognized clinically, and, meanwhile, the character of the water would have had ample time to change over and over again. Perhaps the best known example of such an epidemic in this country is that which occurred in Stockton and Middlesborough in the winter of 1890-91, and was traced by Dr. Barry to the filtered water of the Tees supplied to the inhabitants of those towns. This was on a huge scale, but it would be unreasonable to suppose that every water epidemic must of necessity attain conspicuous proportions, even if the area of distribution of the water be large, for the infective matter may be minute in amount, and may fail to bring about the expected degree of poisoning of the whole supply owing to such conditions as infinite dilution, or imperfect diffusion, or being hurried through the pipes to a limited section of the consumers. Experience teaches that water epidemics of enteric fever are not

often virulent in type, however wide their diffusion may be ; and if the cases be few and mild, there may be little to attract attention to the water-supply, even if it be actually at fault. Probably many little water epidemics escape notice altogether.

All these considerations point to the necessity for a close and constant supervision over the arrangements and working details of public water-supplies taken from rivers. In this matter the Germans are far ahead of us, and their zeal has been stimulated by disastrous experiences of faulty filtration during the late cholera visitation. It is not yet the practice of English water companies to observe the full precautions, or even to maintain the continued and detailed observations which recent experience has proved to be essential to safety. Too much reliance is placed upon periodical chemical examination of the water in bulk, without regard to the dangers of which such analysis could afford little warning, even if so timed as to deal with samples of a water potential for harm. Trade interests are in question, and vendors of water, like vendors of milk, are not disposed to welcome new-fangled suggestions that their wares are liable to convey disease in ways not recognized and provided for.

Sewage, too, is filtered on the large scale before being discharged into streams, and no process of purification is regarded as complete which does not include filtration of some kind. But here the aim is rather different. What is desired is the oxidation of the abundant organic matter which makes the sewage foul, and whether there be many or few microbes in the effluent is not a point to which importance is usually attached. The oxidation is chiefly effected by nitrifying organisms which require a plentiful supply of oxygen to enable them to carry on their work. Hence the filter is used intermittently, in order to bring about aeration, and the surface is kept clean.

But what of the domestic filters, all of which, according to the unbiased testimony of advertisements, are able to do so much to protect the public health against risk of water-borne mischief? They can do a good deal to improve an impure water, but against infection most of them afford little safety, as Dr. Sims Woodhead and Dr. Cartwright Wood have lately taught us. A good filter will remove lead or iron. It will render a turbid water clear, aerate it, and bring about oxidation of some or all of the organic matter in solution. It will obviate the risk of swallowing parasites or their ova in drinking-water. Where a supply open to such

drawbacks has to be used, household filters are very valuable, but with few exceptions, to be mentioned presently, they are leaky to enteric fever and cholera. One of the exceptions, the Pasteur-Chamberland filter, is composed of unglazed porcelain. Owing to the excessive minuteness of its pores, water passes very slowly through this medium, and, although little chemical change is effected, all suspended particles, including even microbes, are arrested, so that the filtrate is sterile. Next in order of efficiency among those known in this country, and similar in principle, is the Berkefeld filter, made of a softer and more readily pervious material, a compact, silicious earth, which, however, in time, ceases to maintain a complete barrier against the passage of germs. It seems that in the course of a few days ordinary harmless aquatic microbes grow through the substance of the Berkefeld filter, but, happily, typhoid and cholera germs do not share this facility, the difference being, perhaps, due to the need of the latter for more concentrated organic pabulum than a water intended for drinking purposes is likely to afford. The Mallié (*porcelaine d'amiante*) filter is very like the Pasteur-Chamberland model. These three filters, if free from accidental flaws, may apparently be regarded as impervious to the germs of disease. Water passes very slowly through them, and it is convenient to employ them as high-pressure filters,—that is, to attach them to the tap or pipe so as to accelerate the flow by means of the pressure in the main.

With regard to ordinary filters, it is well to bear in mind the unpleasant possibility of their becoming not only dirty, but infected. If pathogenic microbes pass through into the filtrate, others will probably remain in the filter, and may be fruitful and multiply, thus actually increasing the danger instead of removing it. It is hardly necessary to say that this is a danger which ought never to arise, and, perhaps, does not often become real, for our public water-supplies are supposed to be properly safeguarded in other ways against infection. Moreover, we cleanse our filters now and then, in theory at all events, and rely upon our servants never to bring unfiltered water to table. But if any one thinks that he has made his household additionally secure from risk of enteric fever by the purchase of a filter, and by diligent cleansing and use of it, let him turn to the second volume of the *British Medical Journal* for 1894 and learn the facts from Dr. Sims Woodhead and Dr. Cartwright Wood.

**Bright Light in the School-Room a Cause of Myopia,
and a Method proposed for the Estimation of
the Quantity of Light.¹**

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THE object of this paper is to ask attention, briefly, to the physiologic results of regular use of the eyes in bright light, and more especially to raise the question as to whether progressive myopia in school-children is not attributable to a large extent to such use. Also to propose a method of estimating the quantity of light in a given place or room with some approach, at least, to mathematical exactness.

The prevalence of myopia among school-children attracted the notice of observers more than thirty years ago. Cohn examined the eyes of 10,000 school-children, and reported over 2 per cent. myopic in the elementary departments, over 10 per cent. myopic in the intermediate departments, more than 19 per cent. myopic in the high schools, and more than 26 per cent. myopic in the gymnasium. The showing discloses an almost regular ratio of increase from the lower to the higher grades. More recent statistics show an increase since that time of from 25 to 50 per cent. in the number of myopic pupils in the higher German schools. In other words, the longer school-life continues the larger is the percentage of myopia. While Germany leads the world in the intensity and persistency of school-work, as she does also in the percentage of myopics, the same conditions, though in a less degree, are shown by the statistics of every civilized people.

Some country schools show as low as 5 per cent. average including 1 per cent. myopic in the elementary departments, but in all the percentage increases rapidly with the continuance of school-life. The causes assigned are: (1) bad air; (2) inheritance; (3) general debility; (4) unnatural posture; (5) use of eyes during partial congestion of the blood-vessels of brain, and

¹ Read at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May, 1895. From the Journal of the American Medical Association.

(6) the use of eyes upon fine print or upon objects in too near proximity. Most of these causes are amenable to improvement to a greater or less degree, and it is fair to assume that the suggestions presented have been acted upon in the sanitary management of schools. We are, therefore, at this state of the inquiry, confronted by two circumstances which stand out very conspicuously: (1) the employment of measures suggested to remedy or diminish the prevalence of myopia, and (2) its progressive increase everywhere during school-life.

Cohn placed as first in the list of causes, "bad light," meaning dim light, and, as far as known, the same prominence has been given to that cause by all writers and teachers down to the present time. As a matter of course, Cohn advised more light, and that advice has been followed in the construction of school-houses. He recommended one square foot of glass area to five of floor area, and he believed that if school-houses should be constructed with a square foot of glass area to every square foot of floor area, that the benefits would be very marked. The proportion of glass area to floor area in school-houses, in my own vicinity, in some cases is as high as one to five, and the intensity of the light in them is intolerable to many eyes if exposed to it for any considerable length of time without proper shading.

Another cause of myopia named and universally admitted is the use of the eyes upon fine print or upon objects in too near proximity. During a personal visitation to many of these schools a very common custom with scholars was observed,—that of laying the book flat upon the desk for study with the face over it. This position necessarily brings the eyes within from five to seven inches of the printed page, and I need not say that such position would meet with universal condemnation. The use of the eyes in this position requires shortening of focus, by increasing the convexity of the crystalline lens by a prolonged contraction of the ciliary muscle, an elongation of the eyeball because of the change in the conjugate foci of the lens; in short, a strained condition of the whole accommodative apparatus of the eye,—a condition of temporary myopia. Practically the same thing happens to the eye when used in a bright light even upon distant objects, the immediate effect of which is to stimulate contraction of the pupil. In contraction of the pupil, the marginal rays—those most refracted by the lens—are cut off, in effect limiting the action of the lens to its central portion, and landing the image

beyond the normal position or distance. The posterior wall of the retina recedes by the action of the recti muscles to receive the image, the ball is elongated, and we have again induced or temporary myopia, just as we have in near or close vision.

The fact is best illustrated by the action of the photographic lens of the rectilinear type, in which the front combination represents the cornea and anterior chamber of the eye, the posterior combination, the crystalline lens, and the posterior chamber, while the retina is also represented by the ground glass screen. With a large stop we focus upon a given object and move the screen until we have the image sharp upon it. We then, without moving the object or screen, remove the large stop and substitute a small one. We contract the light opening in the lens, just as the pupil of the eye is contracted in viewing small objects, using the eye in near vision, or by exposing it to a bright light. We now observe the image upon the screen and find that the use of the small stop has moved the image,—it is no longer sharp upon the screen, because it has receded, and we shall have to move the screen back to where the image is to get a sharp view of it on the screen. In other words, we must elongate the camera box, just as the recti muscles elongate the eyeball in myopia, to get a sharp image upon the retina. The frequent or forced production of temporary myopia results in a condition, chronic and permanent, and too often progressive. The remedy suggests itself; a thoroughly regulated and modulated light in the school-room, a proper seating and frequent interchange of pupils with reference to light, and the substitution of charts and black-boards to the greatest possible extent, for books, in the school-room.

The words bright and dim are used in this paper as substitutes for the more commonly used words "bad" and "good," as indicating a measure of light, and possibly they may be the better words. But after all there is a vagueness in the meaning of such words which ill becomes a study that aims at, and demands, precision in terms used, as well as in methods and results. At best, only comparative or relative degrees of intensity are expressed by such words. I therefore propose a method of estimating with a very considerable degree of exactness the intensity or quantity of light, and not only of estimating it, but of recording it. It is by the use of sensitized paper. The sensitiveness of this paper depends upon the quantity of nitrate of silver contained in a given

quantity of water in the bath. The standard formula is sixty grains to the ounce of water. Albuminized paper floated upon this bath and dried in the dark has a sensitiveness represented by two in the scale of a sensetometer. We have in the paper an instrument at once certain in effect, uniform in action, and convenient to employ. The degree to which the paper is browned or darkened when exposed to a given light is a definite measure of the intensity of that light. I have shades of brown each resulting from exposure of different pieces of the sensitized paper one hour on a bright day, in the light of rooms in which the proportion of glass area to floor area varied from 1 to 1, to 1 to 20. (Scale color slips omitted.)

By the application of this method to the determination of quantity of light in the school-room, the teacher may know not only the average light value of her room, but of the various parts of it, and at various times of day on different days. With such knowledge, she will be enabled to properly regulate the light by the use of suitable shades and also to seat her pupils in such parts of the room as are best adapted to individual needs and idiosyncrasies. In placing the slips for estimation of the light value of a room, the mean distance of the slips from the windows is to be taken as the distant line of the area estimated. A scale similar to the one here presented should in all cases be provided for comparison in the use of such slips, and the degree of browning during one hour of exposure should range only from two to four of the scale. This will represent a safe and yet sufficient light, except in special cases and for short periods of time. The slips immersed in a combined toning and fixing bath for ten minutes and then rinsed in two or three changes of clean water become permanent.

I desire it understood, however, that this paper is not for the purpose of establishing a standard of light for school-rooms, which can only be done after careful concerted observations and experiences, but to furnish a suggestion for the formulation of such standard. Much might be said of the wide range in the diversity of school-house architecture, and the imperative need for uniformity of construction upon the best and most thoroughly matured plans under State supervision, including general rules for lighting, heating, and ventilating the same. This, however, would be foreign to the scope and purpose of this paper, which seeks to draw attention to two points only,—

(1) That the use of the eyes in bright light, so constantly recommended as prophylactic, as a matter of fact causes temporary myopia, which, if persisted in as a habit or from necessity, soon becomes chronic and permanent, as is shown in the history of school-life everywhere.

(2) That the proper use of light as of heat and other natural agencies by the animal economy requires a means for its quantitative estimation. This can be accomplished with a considerable degree of accuracy by the use of sensitized paper.

The Prevention of the Development of Consumption in those Predisposed by Inheritance.¹

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OF course it will be impossible for me to do more than indicate the line of treatment, with perhaps special emphasis placed on certain points, but we shall be greatly aided if we keep well in mind the object of our treatment, the increasing of potential energy. In supplying this energy three means naturally suggest themselves, in food, air, exercise, and by regulating these we can accomplish a great deal even among those who must of necessity remain in the city, where these cannot be so easily regulated as in the country, and in special climates.

Food.—In the classification of food we find that different classes serve different purposes in the animal economy. Thus the nitrogenous elements serve principally the purpose of tissue-building, and the storing up of potential energy, while the hydrocarbons and carbohydrates are concerned principally in heat-production, and from this fact it is evident that the food-supply in these subjects should contain a large proportion of nitrogen. Unfortunately, it is in this very class of patients that we find a marked perversion of appetite, a liking for sweets, a distaste for meat, and it will require all our powers of tact and persuasion to regulate properly the diet of these cases. Some experimenters claim excellent results from an exclusive meat diet, but aside

¹ Abstract of a paper in the Medical Record.

from the difficulty of carrying this out, among private patients, at least, the general consensus of opinion is in favor of a mixed diet composed largely of nitrogenous foods.

If we are fortunate enough to have the patient under observation from the time of birth, the problem is less difficult, providing we can enlist the co-operation of the parents. The fact that the child of a tuberculous mother should not be fed from the mother's breast, on account of both mother and child, is universally conceded; but, in addition to this, would it not be wiser that a mother who inherits merely this diathesis, although she may not have developed tuberculosis, should not suckle her offspring?

At the present time, when the subject of bottle-feeding has been placed on a scientific basis, so that cow's milk can be made almost identical with human milk, the removal of a child from the breast is no longer such a serious question, nor is there the unpleasant alternative of a wet-nurse.

It is possible in this city to order a milk containing the albuminoids, sugars, and fats in whatever proportion the physician may desire, and by taking advantage of this fact we can increase the albuminoids or nitrogenous portion in these cases and watch the effect.

I do not know whether this has been done by any one as yet; but is there not here a field for investigation to find out the effects of a larger proportion than is usually given of the nitrogenous elements in the diet of an infant of tuberculous parents?

As the diet of the child increases in variety it should still consist of only plain wholesome food, largely of a nitrogenous character. The child should not be permitted to develop an appetite for sweets and pastry. The custom of giving a child candy as a reward or bribe is a bad one, aside from the questionable moral effect, and especially is it true in the cases under consideration, for perfect digestion is a *sine qua non* in their successful treatment, and in these subjects the sugars are very apt to cause digestive disturbances.

As the child grows older, the diet, of course, varies somewhat; but the same principle holds good. And in the selection of articles of diet, with the aim of giving a large proportion of nitrogen, we shall find a large number from which to choose, for aside from meat we find other articles containing a large proportion of nitrogen; thus, eggs contain about 13 per cent. of pro-

teids, fish, 18 per cent., oatmeal 12 per cent., pease 20 per cent., cheese 31 per cent. I mention these simply to emphasize the fact that meat is not the only nitrogenous food, and that in regulating the diet, to prevent sameness, we can select food-stuffs which still aid in accomplishing our aim.

Air.—The necessity for fresh air is as important as the necessity for proper food. The rôle which oxygen plays in the metabolism of the body is a well-known physiological fact, but is more often disregarded in practice than remembered in theory.

It would, of course, be better for persons subject to this diathesis to live in some region where the air is absolutely pure, and where the tubercle bacillus is not present, but this is not often practicable, nor is it necessary. If we breathed nothing less impure than the out-door air of this city we should have little cause for complaint. It is the air in our dwellings that is impure, and the fault is our own.

When the patient is old enough to look out for himself, we can advise him, as far as possible, to lead an out-door life, and in the case of a young man to select a business or profession where this will be possible; but if the patient is an infant or young child we must be explicit in our directions to those in charge of the child, and teach them a few lessons on the subject of ventilation.

We must show them how perfectly possible it is to ventilate a room without the presence of draughts. That it is only necessary to have a communication between the outer and the inside air, and by the law of diffusion of gases, and the law which relates to the difference in weight of masses of air of unequal temperature, the warm, impure air of the room will pass out, and the cool, pure, outer air will come in and take its place, and that the process can be made to take place so gradually that the temperature of the room remains stationary.

We can tell them that the simplest, and yet one of the most delicate means of testing the purity of the air in a room, is that by the sense of smell; that on entering a room to be tested we should notice no difference in point of freshness between the outside and inside air, remembering that warm air is not necessarily impure, and that in this test the question of temperature is not to be taken into account.

These are homely truths, and it would hardly seem necessary to mention them, and yet is it not true that the majority of sleep-

ing-rooms have a disagreeable, stuffy odor before they are aired in the morning? This odor is due to the organic matter exhaled from the lungs and skin, and if not removed from the air of the room is taken into the lungs with each inspiration and constitutes a positive poison. Such a condition is bad enough for healthy subjects, but for the cases under discussion, in whom the amount of vitality is below par, is a serious drawback to our efforts in overcoming this diathesis.

Exercise.—As the child grows older, and especially during the period of youth, exercise is important as a prophylactic measure. In considering the subject of food, we pointed out the necessity of increasing the nitrogenous elements; but this is only possible as it is combined with active physical exercise. The nitrogen assimilated is stored up, principally in the muscular tissue, and as this is increased and developed a correspondingly large amount of nitrogen is stored up.

In considering the different forms of exercise it will be well to select, as far as possible, those which of necessity must be performed in the open air, as fresh air is thus obtained at the same time. Bicycle riding is an excellent form of exercise, providing a faulty position is not adopted; also brisk walking, especially when taken with some definite purpose other than for its own sake. Swimming, horseback riding, and, in short, all recognized forms of healthy out-door exercise will accomplish the desired end.

Besides these there are special forms of exercise which apply particularly to these subjects in whom there are frequently found a poor chest development and deficient lung expansion. Perhaps one of the best means for overcoming these defects is the exercise of swimming, in which there is, of necessity, a forced inspiration and a special development of some, if not all, of the muscles of respiration.

In addition to these there is the exercise with the so called chest-weights, and how much can be accomplished by these and other forms of gymnasium apparatus has been recently shown in a paper by Dr. Gardner Smith. The only objection to exercise in the gymnasium is the poor ventilation frequently found there, but this is a fault easily remedied. A simple, yet practicable, means of increasing the lung expansion, including the apices, which, in these cases, are so apt to be partially collapsed, is that in which the subject, when walking in the open air, inhales

slowly and deeply, and then retains the air in his lungs for a few steps, when he gradually exhales. In this way I have seen the lung capacity markedly increased. To some of these patients, on account of business, daily open-air exercise or that in the gymnasium is an impossibility. In these cases I advise the purchasing of a chest-weight apparatus, which is placed in the bath-room and used every morning for a short time, followed by a cool plunge-bath and brisk rubbing. The latter serves the purposes of cleanliness, an active tonic, and a means of hardening the skin, thereby lessening the liability to "catch cold." The interest of the patient in his increasing muscular development removes the sense of irksomeness from the exercise, and the after-effects of the cool bath are such that it soon becomes a great pleasure, and not to be foregone by one who has become accustomed to its use.

These are a few of the salient points in the hygienic treatment of this condition. I have made no mention of drugs, because, in the majority of cases, they are not called for, though often their treatment is dismissed with a prescription for cod-liver oil. Any intercurrent disease must be treated on its own merits, and this includes the surgical measures indicated in diseases of the respiratory tract, to which we should pay especial attention.

In closing, let me again emphasize the fact that the etiology of tuberculosis is twofold, and that in the prophylactic treatment we should pay as much attention to the diathesis as to the tubercle bacillus.

My excuse, if one is needed, for confining myself in this paper to the consideration of the diathesis, is that I feel that this side of the question is too often neglected in practice, and that, while the exact nature of this diathesis is theoretical, the treatment based on this theory is highly satisfactory.

Wrapping-Paper for Articles of Food.

The city of Montpellier is said to be the first in France to adopt regulations concerning the kind of paper to be used for wrapping up articles of food. By a municipal decree, in force for some months, the use of colored paper is absolutely forbidden. Printed paper and old manuscript may only be used for dried vegetables, roots, and tubers. For other articles of food, new paper, either white or straw-colored, must be used.

A Point on the Hygiene of Tubercular Consumption.¹

BY FLORA S. RUSSELL, M.D.

IT was winter. I was called to examine the lungs of a girl of 12 years, in a family out of which three members had already succumbed to pulmonary tuberculosis. This family was one of a few of the old residents left on a street which had outlived its popularity as a residential section of the city, and the old houses were fast giving away to stores and manufactories. The old gentleman hoped to be permitted to terminate his days there, and be buried from the house in which he was born, and from his present condition it looked very much as if his desires might be gratified, and not only in his own personal case, but that the privilege would be extended to the whole immediate family. The mother had died of consumption five years before, and three years previous to that her brother, who was living with them, died of the same. Later followed the oldest daughter, and now were this little girl and an equally delicate older brother.

The weather was cold; the rooms were heated by furnace, and in this room, at least, the register was in the floor. The child coughed, the boy coughed and raised copiously, and the old man did the same; and where do you think they deposited their expectorations? Right into the register, where it lodged in the warm pipe and dried there! The bloodless little girl was crouched almost over the register, inhaling the hot air as it came up from the furnace. After I had comprehended the situation, I questioned the father as to the meaning of such a procedure, and was informed that the register was used as a receptacle for the refuse matter of the lungs of the family from a purely hygienic standpoint; he had heard and read that "the spit from diseased lungs was catching, and he was going to have it dried up, out of harm's way." He had practised the habit, from a sense of cleanliness, long before he had ever heard it was catching; before the youngest child was born.

Considerable has been said on the feasibility of enacting a law which should prohibit pedestrians from spitting on sidewalks

¹ From the Medical World.

and in the streets of a city, on the assumption that the tubercle bacilli possess no power of infection until after the process of desiccation has taken place, when it becomes a very active and formidable creature; and the air, tramping of feet, whirling of garments, etc., act as so many accessories to the accomplishment of its mission. But with such facilities as the family register offers, the danger of inhaling the deadly germ from public thoroughfares becomes comparatively insignificant.

That house has been demolished, and in its place is being erected a business structure whose means of heating require no claptrap holes, neither in floors or walls, being steam. But how many houses in every town and city are yet left with floor registers? and how many (heaven only knows!) are used as cuspidors and receptacles in a small way for the refuse matter incident to civilized life,—as might be seen in low-down lodging-houses,—and perhaps in some not so low?

Health in Michigan.

SMALL-POX IN MICHIGAN IN THE THIRD QUARTER OF 1895, AND ITS PRESENT STATUS.

AT the October meeting of the Michigan State Board of Health, Secretary Baker, in his report for the third quarter of 1895, has the following statement relative to small-pox:

Four new outbreaks of small-pox were reported during the quarter. These occurred in Charleston Township, Kalamazoo County; Bedford Township, Calhoun County; Marshall City; and Battle Creek Township, Calhoun County. A final report of the outbreak at Charleston Township has been received. The case at Marshall City died, but no final report of this outbreak has yet reached this office at this date (October 1, 1895). Final reports have been received from the outbreaks in Olivet Village and Danby Township, which began during the second quarter of 1895.

At this date (October 1, 1895), small-pox is still present at Detroit, Battle Creek, Bedford Township, and Battle Creek Township.

The outbreak which began in Detroit in May, 1894, still con-

tinues. During the quarter ending September 30, 1895, there have occurred in that city twenty new cases and two deaths, which, with the seventeen cases that were still sick at the close of the year 1894, and the 108 cases, and thirty-three deaths which occurred during the first six months of 1895, make a total of 145 cases and thirty-five deaths during the nine months ending September 30, 1895. During the nine months of 1895 there have occurred in the city of Detroit 128 new cases and thirty-five deaths; at the close of this quarter eleven cases were still sick. (From the beginning of the outbreak in May, 1894, up to October 1, 1895, there have occurred in the city of Detroit 268 cases and sixty-nine deaths.)

The outbreak which began in Battle Creek in June, 1895, still continues. During the quarter ending September 30, 1895, there have occurred in that city fourteen new cases and three deaths, which, with the three cases which occurred during the second quarter of 1895, make a total of seventeen cases and three deaths which have occurred in the city of Battle Creek.

In the four new outbreaks of small-pox which occurred during the quarter ending September 30, 1895, there have occurred six cases and three deaths.

During the nine months ending September 30, 1895, including the seventeen cases which were still sick in Detroit at the close of the year 1894, there have occurred in the State 195 cases and forty-five deaths.

In thirteen out of the fifteen outbreaks, relative to which final reports have been received, during the nine months ending September 30, 1895, the infection was restricted to the one house in which it first occurred. The two exceptions to this rule were Highland Park, Wayne County, and the city of Battle Creek. This statement does not include the city of Detroit, as the outbreak in that city still continues, and, since the outbreak began in May, 1894, at least fifty houses in that city have been infected, and probably a great many more.

This subject of small-pox in Michigan is important now, because this is the time of the year when small-pox usually begins to spread, reaching its maximum about May. For all persons not having recently had small-pox or not successfully vaccinated or revaccinated within five years, now is a good time to be vaccinated. No person need have small-pox if he will keep himself protected by successful vaccination.

TYPHOID FEVER IN MICHIGAN IN THE THIRD QUARTER
OF 1895, AND ITS PRESENT STATUS.

The quarterly bulletin shows that,—

“Compared with the average in the corresponding quarters in the nine years, 1886–1894, the reports from regular observers indicate that typhoid fever was much more than usually prevalent, and that typho-malarial fever, intermittent fever, pulmonary consumption, inflammation of bowels, remittent fever, whooping-cough, and erysipelas were less than usually prevalent in the third quarter of 1895.

“Probably some of the increase in the reports of typhoid fever, and a corresponding decrease in the reports of typho-malarial fever, both have come about because of action by the State Board of Health, October 8, 1889, in advising that in all cases of fever of doubtful origin continuing more than seven days, precautions should be taken as in typhoid fever. Dealing with such fever as typhoid for public health purposes, has apparently gradually resulted in their being called typhoid fever more generally than was formerly the custom.

“Two hundred and sixty new outbreaks of typhoid fever were acted upon during the quarter. Of sixty-nine of these outbreaks information was obtained from the local columns of newspapers; of these sixty-nine outbreaks, fourteen were confirmed by the health officer; eighteen were denied; and in thirty-seven instances no reply was received from the health officer. One hundred and twenty-five more outbreaks were acted upon in the third quarter of 1895 than in the third quarter of 1893, and 105 more than in the corresponding quarter of 1894. Some of this increase is probably due to better reports by local health officers.

“Of the 260 outbreaks acted upon during the quarter, forty-eight occurred in the month of July, ninety-six in August, and 116 in September.

“Typhoid fever is most prevalent in October, when the water in wells is lowest.

“F. D. Parmlee, of Hillsdale, in his report for September, 1895, says the water in the well there ‘is the lowest in thirty-two years.’ At the State capitol the observation well has been dry since June, the water having gradually lowered since June, 1894. It was never known to be dry until this season.

“At this time of year, usually typhoid fever is reported under

the observation of about 20 per cent. of the physicians, who report to the State Board of Health. For the week ending September 21, 1895, it was reported by 32 per cent. of the observers, and for the week ending September 28, by 30 per cent. of the observers in Michigan, indicating about 50 per cent. more sickness from typhoid fever in the last two weeks in September, 1895, than in the average September. For the entire month of September, 1895, weekly card reports indicate 31 per cent. more typhoid fever than the average for September in the nine years 1886-1894. The office of this board has been active in efforts to decrease this disease. The public attention has been asked to the more than ordinary danger; railroad officials have been advised that typhoid fever is a dangerous communicable disease, and, as such, is included in the new law relative to the transportation of corpses, etc., and, inasmuch as the health officials of the largest city, in which are about one-tenth of the people of Michigan, do not act for the notification or restriction of this important disease, a letter has been sent to the health officer of that city, placing before him some of the evidence collected by this office, and asking him to advise his local board of health to enter vigorously on the work of restricting typhoid fever. The letter was substantially as follows:

"OFFICE OF THE SECRETARY
"OF THE MICHIGAN STATE BOARD OF HEALTH,
"LANSING, October 8, 1895.

"SAMUEL P. DUFFIELD, M.D.,
"Health Officer of the City, Detroit, Mich.

"DEAR DOCTOR:—Referring again to your letter of October 4, relative to the restriction of typhoid fever, I send you by this mail a copy of our reprint, No. 439, relative to typhoid fever in Michigan in 1892. On page 244 is a diagram showing that during the years since the restriction of typhoid fever was undertaken by the State Board of Health the mortality from that disease has been less than it was before. I enclose a diagram showing that, according to the statistics of the State Department, 1671 lives have been saved from typhoid fever during some of those years,—1879-90.

"On page 248 you will see a number of instances recorded where health officers have reported typhoid fever contracted from patients sick from typhoid fever.

"On page 253, in Table 7, you will see that in 1892 ten outbreaks of typhoid fever in different parts of Michigan were reported by the health officers to have been due to infection brought from the city of Detroit. In those ten outbreaks three deaths occurred.

"On page 263 is a diagram of the experience in Michigan in 1892, so far as reported to this office by local health officers, relative to isolation and

disinfection. You will see that in those outbreaks in which isolation and disinfection were enforced there were only about one-third as many cases and deaths as in those outbreaks in which isolation and disinfection were neglected.

"I trust that you will go carefully over the subject, and see if you cannot advise your local board of health to enter vigorously upon the work of notification and restriction of typhoid fever in Detroit. This is a subject of importance not only to the one-tenth of the people of Michigan residing in Detroit, but also to the people throughout the State, as is shown by the ten outbreaks and three deaths from typhoid fever spread to other parts of Michigan from Detroit in the year 1892.

"Very respectfully,

"HENRY B. BAKER, *Secretary*.

"P.S.—On page 247, of the article on typhoid fever, you will see that in 1892 there were reported in this State Board of Health 101 instances in Michigan in which typhoid fever was traced to a former case of typhoid fever. This is an indication of the need for its restriction.

"Yours,

"H. B. B., *Sec.*"

Feeding of Children.

Many parents do not even have the instinct as to feeding their young that the lower order of animals have, says Dr. J. A. Work, of Elkhart, Ind. They do not seem to know that the infant, as a rule, brings its natural life and health-sustaining food with it, but are ready to feed it with all manner of food which manufacturers have been actuated to invent from whatever motive. They know the child's stomach only as a receptacle, and are slow to learn that any food will harm the digestive apparatus, because they (the parents, or perchance the grandmother) are fond of such food. I have known well-meaning mothers to feed their babies with mince pie, fried potatoes, all kinds of fruits, meats, nuts, and all before the child had the sign of a tooth. And when the almost universal rational artificial food (cow's milk) has to be given, such kindness is bestowed that the child gets all that it wants and whenever it wants it, regardless of the impaired condition of the digestive organs. Often food is given where drink only is necessarily required by the fretting child. In many instances, if not death, irreparable injury is produced by urging children to fill or gorge their stomachs with fresh food, while a large portion of the former meal in a decomposed condition remains. The result of a continuation of this very common habit is obvious to the pathologist.

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Functional Nervous Diseases.

GENERAL CONSIDERATIONS.

THESE editorial articles are not designed as speculative contributions to the scientific discussion of diseases of the nervous system (there are too many such already), but as a simple record of facts, as they have occurred to the author, the recital of which, the reading of, reflection upon, and recollection of which will help his professional brethren to a correct appreciation of, and treatment for, many disordered conditions of the human body that have hitherto puzzled them for a diagnosis and exhausted their ingenuity in treatment.

It is a lamentable fact that, as a rule, the medical profession do not readily accept the entirely comprehensible; if a simple solution presents itself to them, they will go out of their way to find one that is but partially comprehensible; that which is simple, is too simple to be good; that only which is clouded by science and technicality is worthy of acceptance. It was not so in the days of our forefathers; it was not so in the days of those physicians who, because of the very simplicity of their greatness, will live forever in the memory of the world; but it is so in these days of science, when *speculation, theory, science*, rather than *facts* rule the world.

The theories of Koch, Bergeon, and a host of others daily

captivate the medical mind ; antitoxin and serum therapy find an immediate acceptance ; one theory has hardly been accepted before another takes its place ; anything surrounded with the halo of mystery and science, howsoever ridiculous it may seem from the *practical* point of view, is greedily accepted. Facts are at a discount ; *theory is king*.

Most of the so-called medical discoveries of later times have originated from a theory, into which facts are *forced to fit*, for a time, until, by the very inherent resiliency of truth, they spring out and the theory is exploded. That this is an illogical process all will admit, yet, time after time, the medical mind is held captive by such impractical conclusions.

That which I will relate is a theory based upon observed facts and confirmed by clinical experience ; first, facts repeatedly recurring ; then a theory to fit into these facts ; then treatment based upon this theory ; then cures ; a logical sequence more convincing than all the speculations of science.

Should those of my readers who hold blindly to science criticise what I may say as not being scientific, all I ask is that they put my suggestions to the test of practical use, and if they do not get satisfactory results, then to condemn them, but not before. Practical test is the crucible in which all theories should be tried, and between the acceptance of the demonstrations of practical utility and the vaporings of scientific theories there should be no hesitancy in the mind of the *practical* man, for whom these articles have been written.

THE CAUSES OF FUNCTIONAL DISEASES.

By a functional disease it must be clearly understood that we mean a disordered condition of some organ or part not dependent upon a change in the composition of such organ or part ; an organ that is functionally deranged is an organ that is capable of its full measure of duty if the necessary collateral conditions are present ; this distinction between functional and organic diseases is of the utmost importance, because we all know that functional diseases are curable, while it is possible, at the best, only to retard or delay the inevitably fatal progress of organic disease. Of course, as physicians, we are already familiar with this fact, but, for lucidity and simplicity, it is reiterated in order that we may be clearly and intelligently followed in the course of reasoning upon observed facts that has

brought us to our present frame of mind in connection with nervous diseases and the general influence of the nervous system upon disease in general. *Please have always in mind that we are writing of FUNCTIONAL, or CURABLE diseases; that we are writing of organs or parts that are in themselves fully capable of healthful function if the essential collateral conditions be present, of organs ready and able to do their full measure of work; but handicapped because the necessary vis-a-tergo is wanting.*

Let us start out with the assertion that, roughly speaking, the human body consists of a combination of fifteen of the seventy elements found in nature; the human body is a combination of (1) oxygen; (2) hydrogen; (3) nitrogen; (4) chlorine; (5) fluorine; (6) carbon; (7) phosphorus; (8) calcium; (9) sulphur; (10) sodium; (11) potassium; (12) iron; (13) magnesium; (14) silicon; (15) manganese.

It is certainly logical to infer that the presence of all of these elements in the proportions and combinations intended by nature would offer to us a typically healthy human being, and, we think, equally logical to infer that any departure from the healthy standard must imply a deficiency or an excess of some one or more of these elements, or some fault in the relative proportions or combinations thereof. This seems to us a simple but incontrovertible proposition, and a firm and satisfactory foundation upon which to erect our study of functional diseases.

Now, then, let us suppose an adequate amount and a *perfect* combination of these elements placed in a locality every environment of which is *perfectly* adapted to the *perfect* fulfilment of the natural laws designed for the government of this *perfect* combination, and we *must* have a *perfect* human being, *perfectly* healthy; absolutely without the need of advice or drugs; *perfectly* unconscious of its existence, save for the ever-present sense of pleasure, of delight, of contentment that must be the outcome of such perfection. From the existence of *perfect* requisites, *perfect* conditions only can result; this is an unquestionable truism.

If, then, the human being is a combination of elements, it will not be amiss (for the sake of illustration) to make perfectly clear the idea that we have in view; as the central point of this whole question, it will not be amiss, we say, to contemplate this combination as a machine.

Let us go to a manufacturer of locomotives and commission him to build us a perfect machine, calculated to run at the rate

of sixty miles an hour ; when finished, let us haul this machine out of the shop onto the track, with a string of horses, and command it to move ; let us go away and come back after ten years, and there stands the locomotive as we have left it ; it has not moved the smallest fraction of an inch ; but, we ordered a machine capable of motion and power ; well, this machine possesses such capability when the necessary conditions are supplied to it ; put water in the boiler, coal in the furnace, apply the match, and away we go.

If we could imagine a human being without a nervous system, then would such a person be like the locomotive without steam. The human body, viewed in its entirety, consists of muscles, of a heart, of lungs, of a stomach, of a liver, of kidneys, of all the parts necessary for health ; these parts are all combinations of the elements of which I have spoken ; these parts are all necessary to the life of the body as a whole, *but the power of life itself does not reside in any one of them*. Each and every organ of the body is endowed with a latent possibility of activity, just as each and every part of the locomotive possesses the dormant power to do its part in the production of motion, but there is nothing within the body of the organ itself that can either incite or maintain activity or motion. The heart is capable of contracting and relaxing eighty times every minute ; it is *capable*, we say, of doing so ; but it does not, within itself, possess the power of causing one single contraction ; the stomach is *capable* of digestion ; the kidneys are capable of excretion ; the muscles are *capable* of contraction, but not one of these parts can do that of which they are *capable* because of any inherent power resident within their structure. *The organs of the body possess, so to speak, a capacity but not a potentiality*. To our way of thinking, a clear comprehension of this difference is of the utmost importance ; it has been of the very greatest value to us in our professional work, and will prove equally so to others if logically reasoned out to its ultimate conclusions.

If, then, the organs of the body possess a capacity capable of conversion into a potentiality, what is the agency of this conversion ? The nervous system, of course ; and now, we fancy, you will look ahead and grasp our whole idea.



Where Alcohol Kills.

Stockholm has the largest death-roll from alcoholism of any city in the world. Ninety in 1000 die from the excessive use of intoxicants.

Cheap Babies.

One of our exchanges (says the *National Medical Review*) carries an illustrated advertisement. There is a picture of a handsome young mother holding the sweetest kind of a baby in her arms. All we see beneath the picture is: "Price, \$2.60 per dozen."

Measles.

Measles is a more serious disease than is generally considered. It is a great error to think that we do children a kindness in exposing them to measles. One case of measles in a school should cause the closure of the school until it can be definitely ascertained that all danger of contagion is past.—*National Medical Review*.

Reciprocity in Disease.

To the medical philosopher nothing can be more deeply interesting than to trace the reciprocity of action existing between different mental conditions and affections of particular organs (says Dr. Forbes Winslow). Thus the passion of fear, when excited, has a sensible influence on the action of the heart; and when the disease of this organ takes place independently of any mental agitation, the passion of fear is powerfully roused. Anger affects the liver, and frequently gives rise to an attack of jaundice; and in hepatic and intestinal disease, how irritable the temper is?

Hope, or the anticipation of pleasure, affects the respiration; and how often do we see patients in the last stage of pulmonary disease entertaining sanguine expectations of recovery to the very last!

Water Pollution.

By order of the Bradford (England) Corporation 30,000,000 gallons of water contained in the Chellow Dean Reservoir were recently run to waste on account of the discovery of the decomposed body of a man, who committed suicide in the reservoir. The value of the water thus wasted is estimated at \$6000.

Drawing Down the Disease.

At the very outset of the war, sundry wise men from New York urged Mr. Lincoln to keep away Confederate armies from Washington by naval attacks upon Southern seaports. It reminded him, he said, of a New Salem (Illinois) girl who was troubled with a "singing in her head," for which there seemed to be no remedy, but a neighbor promised a cure if they would "make a plaster of psalm tunes and apply to her feet and draw the singing down."

Foods Preserved in Carbonic Acid.

An improved apparatus for preserving food is a tank filled with carbonic acid gas, which, being heavier than air, does not escape. The gas impregnates the foods stored on the shelves and preserves them indefinitely without injury, and also keeps them free from insect life. The gas is thrown off from the foods very soon after being exposed to the open air; their natural freshness and flavor are retained much better than if they had been in contact with ice.—*Bottlers' Gazette*.

Limited School Quarantine for Infectious Diseases.

The following scale of school detention of scholars and teachers has been adopted by the Pennsylvania State Board of Health. The recommended time of quarantine, for persons who have been exposed to the infective diseases, after which those persons may safely be admitted again to schools, if they continue in good health and have taken proper measures for disinfection: for diphtheria after twelve days; small-pox, eighteen; measles, eighteen; chicken-pox, eighteen; mumps, twenty-four; whooping-cough, twenty-one. Adults may be admitted at once, if they disinfect their clothes and persons.

Out of Sorts.

This is what the mother of the Bishop of Huntington did to cure herself of being "out of sorts," when she was fifty-nine years old, as shown by an extract from her diary: "Took physic and consulted the family physician, all to no purpose; suspected the disorder to be nervous; tacked about, put on great resolution, and made mince pies, and found myself no worse than before."

The Medicated Kiss.

Jenny kissed me when we met,—
Not as one we osculated;
Leaving doubt and vain regret;
Jenny's lips were medicated!
So! the romance fades away,—
Love has lost his dearest blisses;
Ruined in the rose of May
With these chilly, drug-store kisses!

—*Atlanta Constitution.*

Physical Training of Indian Hunters.

The physical training of the hunter was a part of the education of every Indian boy, and different tribes had different modes of developing the powers of endurance. Among the Omahas the youth were taught to run,—not so much to run rapidly for a short distance, as to keep up an even pace for many miles; and the habit of careful observation was also inculcated. The runners' services on the tribal hunt were important: it was necessary for them to be able to travel far in search of the buffalo, and to return quickly, so that the tribe could go forward, and the hunters encompass the herd before it could move any great distance. They must also closely note the topography of the country as they run here and there in search of the game, so as to be able to direct the tribe to the herd over the shortest route, which they might not themselves have travelled. They must also be constantly on the watch for tracks or signs of an enemy, lest they should bring the tribe into danger. It was not uncommon for these young men to run from seventy to one hundred miles within twenty-four hours, taking very little rest and food.—"Hunting Customs of the Omahas," by ALICE C. FLETCHER, in *September Century*.

Still a Youngster.

Mr. Gladstone, on alighting at a railroad station in England recently, was cheered by the spectators present, one of whom, an elderly gray-haired man, advanced with extended hand to greet him. After shaking hands with him Mr. Gladstone inquired his age. "Seventy years old," was the reply. "Why, you are quite a youngster still," remarked Mr. Gladstone, jocularly, amid the laughter of the bystanders.

The Causes of Death.

According to the census of 1890, of every 10,000 deaths in the United States 1 will be from calculus, 35 due to Bright's disease, 40 to fevers other than typhoid, 59 to rheumatism, 70 to scrofula, 130 to cancer, 140 to apoplexy, 148 to whooping-cough, 160 to dysentery, 190 to meningitis, 220 to scarlatina, 246 to ague, 250 to convulsions, 310 to typhoid fever, 350 to heart trouble, 480 to diphtheria, 880 to diarrhœa, and 1420 to phthisis. Of this number 2210 are from typhoid, diphtheria, and phthisis, all of which are preventable; and if we take in whooping-cough, dysentery, scarlet fever, and diarrhœa, we shall have more than one-third of all deaths at the present time from preventable causes.

Caution to Localities where Typhoid Fever is Prevalent.

The germs of this disease are now known to be in the discharges from the bowels, and recently have been found in the urine; they are known to be in the spleen, and probably pervade the entire body of a person having typhoid fever (says Dr. Henry B. Baker, the secretary of the Michigan State Board of Health). The germs are not rapidly destroyed by drying. Typhoid fever is probably always spread from a person having that disease. It is sometimes spread directly from person to person.

All discharges from the body of a person having typhoid fever should be disinfected.

Public notice of every infected place should be given by placard on the premises and otherwise, if necessary, so that no person may unguardedly drink water or take food from a source likely to be contaminated with the germs of typhoid fever.

French Brandy.

Dr. Laborde recently read a paper before the Académie de Médecine of Paris on the liquor supplied to the French army under the name of cognac. He had analyzed the stuff used for making the worst spirit into the best cognac, and found that it consisted of castor oil, cocoanut oil, and other fatty substances treated with nitric acid, and labelled "Bouquet de Cognac." "Pure Jamaica Rum," sold by an English house, proved, on analysis, to be much of the same quality.—*The Sanitarian*.

Definition of an Habitual Drunkard.

A petition has been presented to the English House of Lords, praying that any person who has been twice convicted of drunkenness within two years shall be defined to be an habitual drunkard, and that any licensed dealer serving or harboring him after due notice shall be liable to penalties and forfeiture of license. In South Australia three convictions within six months constitute an inebriate or habitual drunkard. An Inebriate Bill, which was before the late Parliament, but failed to be acted upon before the dissolution, proposed three convictions within twelve months.

Instead of Bean-Bags.

Every one knows the mirthful game of bean-bags, where two facing lines endeavor to get their own pile of bags transported from one end of the room to the other before the other line has done so. A still funnier game was tried not long ago at a summer resort, where a number of people did not know what to do with themselves in the evening. They were arranged in the facing lines with a table at each end and a dozen clothes-pins for each of the two lines on one of these light stands. Next an umpire was appointed, and the players were instructed to all take their left hand neighbor's right wrist by their own left hand. Then the pins were passed from one to another to reach the lower table. If one was dropped it had to go back to the first table and begin again. As no player used his own hand to work with it was a most awkward and very jolly game, which woke up the stiffest and roused shrieks of laughter.

Boil your Drinking-Water.

The Michigan State Board of Health Bulletin for the week ending October 19 shows typhoid fever still very prevalent.

This is a time of extraordinary danger from typhoid fever, as has been predicted, since the low water in wells was apparent in June, July, August, and September.

Prudence dictates that all drinking-water, not known to be above suspicion, should be boiled and cooled in some place where the typhoid-fever germs will not gain access to it.

Whiskey.

Hold a mouthful of spirits—whiskey, for instance—in your mouth for five minutes, and you will find it burns severely ; inspect your mouth, and you will find it inflamed. Hold it for ten or fifteen minutes, and you will find that the various parts of the interior of your mouth have become blistered. Then tie a handkerchief over the eyes, and taste, for instance, water, vinegar, or senna, and you will find you are incapable of distinguishing one from another. This experiment proves to a certainty that alcohol is not only a violent irritant, but also a narcotic. Can you believe that the still more tender and important organs of the body can be less injuriously affected than the mouth?—*People's Health Journal.*

The Flesh-Brush.

It is not always possible to indulge in the sponge bath, but the daily use of the flesh-brush need not be denied any one, no matter what are the difficulties attending travel and unsatisfactory surroundings. Few seem to realize the great advantages derived from a vigorous use of the flesh-brush or the flesh-glove. Said a prominent physician recently, "That longevity is promoted by friction there can be little doubt. The declining energy and decay from age appear to arise, or at all events are accompanied and accelerated by the gradually decreasing energy of the circulation, and the use of the flesh-brush restores energy to the parts. It is therefore recommended as a panacea for premature decay, and all the diseases depending on it." It takes a few minutes to give a vigorous rubbing to the entire body on jumping out of bed in the morning, and the beneficial results will amply repay the time and trouble.

The Origin of the Deadly Microbes.

Germes and bacilli of many kinds bearing the closest relationship, or being identical with those germes that accompany the most serious of diseases, are found innocently residing in the mucous membrane and secretions of many persons unaffected by any disease. Should, however, such persons become debilitated or depart from the condition of normal health, these germes may take upon themselves a change and become pathogenic or disease-germes, and in that guise will develop diseases without end.—*National Popular Review.*

To Prevent Chapping.

As cold weather approaches, women try to devise means for preventing hands and lips from chapping. An excellent remedy to prevent chapping is cold cream. The manicurist told me that it also whitens the skin more than any preparation. It has taken the place of the old-time remedy,—mutton suet. It should be well rubbed into the skin and gloves—preferably white—slipped on. The palms of the gloves should be slit in several places to allow the air to enter and prevent cramp of the muscles, and the finger-tips clipped off. Vaseline should never be allowed on the hands.—*Medical and Surgical Reporter.*

Sermons and Slumbers.

“Shut the doors!” cried Father André one day to his Swiss duty, when he observed the Archbishop of Paris asleep during his discourse. “Shut the doors, the shepherd is asleep, the sheep will get out!” “Some men preach,” said Sydney Smith, “as if they thought sin is to be taken out of a man as Eve was taken out of Adam, by casting him into a profound slumber.” So at any rate thought not South, who, preaching one day at Whitehall, observed King Charles II. and several of his attendants asleep. Stooping down, he cried out to one of the delinquents, “My Lord, I am sorry to interrupt you, but if you snore so loud you will wake the King.” His majesty thereupon awoke, and, turning to his neighbor, remarked, with his accustomed good nature, “This man must be made a bishop; remind me on the next vacancy.” Latimer speaks of a woman who suffered from insomnia, and who, all soporifics having failed, was taken to the

church of St. Thomas of Acres, when she fell at once into a refreshing slumber. Lapenius, chaplain to the Danish court (1662), noticing that a large part of the congregation fell asleep during the sermon, suddenly stopped, and, pulling from his pocket a shuttle-cock, commenced to play with it. The strange device, we are assured, had the effect desired.—*Temple Bar*.

To Clean Brass.

The government method prescribed for cleaning brass, and in use at all the United States arsenals, is claimed to be the best in the world. The plan is to make a mixture of one part common nitric acid and one-half part sulphuric acid in a stone jar, having also ready a pail of fresh water and a box of sawdust. The articles to be treated are dipped into the acid, then removed into the water, and finally rubbed with sawdust. This immediately changes them to a brilliant color. If the brass has become greasy, it is first dipped in a strong solution of potash and soda in warm water; this cuts the grease, so that the acid has free power to act.

The Regimen of a Great Scientist.

Writing of the late Mr. Huxley, in *Scribner's Magazine* for October, Mr. George W. Smalley tells us that his life was almost ascetic. Tobacco was perhaps his one indulgence. A great part of the work by which the world knows him was done after dinner, and after a hard day's work in the lecture-room and laboratory. He never spared himself. Often and often have I known him to leave the circle of family and friends, of which he was the life, very early in the evening, and betake himself to the library, a room of which the only luxury was books. If remonstrated with or appealed to for another half hour, he would only shake his head. There was something to be done. And it would be midnight or one or two o'clock before it was done, and then he was up at seven in the morning. I sometimes thought he had no higher happiness than work; perhaps nobody has. He would dine on a little soup and a bit of fish; more than that was a clog on his mind. "The great secret," he said, "is to preserve the power of working continuously sixteen hours a day, if need be. If you cannot do that, you may be caught out any time."

Looking-Glasses in Coffins.

One of the ancient customs connected with Swedish funerals was to place a small looking-glass in the coffin of an unmarried female, so that when the last trump sounds she might be able to arrange her tresses. It was the practice of Scandinavian maidens to wear their hair flowing loosely, while the matrons wore it bound about the head and generally covered with some form of cap. Hence, the unmarried woman was imagined as awakening at the judgment day with more untidy locks than her wedded sisters and more in need of a glass.—*Westminster Review*.

The Buriats.

Dr. Shendrikofski communicated a very interesting account of the Buriats, a race inhabiting from time immemorial the regions round Lake Baikal in Siberia. They are an entirely pastoral race. They all, men and women, practically live in the saddle. In summer they dwell on the plains; in winter, when the snows come, they retire to the hills and live in *yurts*, huts built of wood or felt, small, rickety, and dirty. They drink sour milk and "brick" tea. They seldom eat meat, but when they do they eat it in enormous quantities, six or seven pounds at a time, without salt or bread. They are insatiable smokers, men and women, even children indulging inordinately. There is scarcely any social life among them. Each *ulus*, of five or six families, generally related, lives its own separate existence. Their religion was formerly Shamanism, but about a century and a half ago the Mongol Lamas were permitted to preach Buddhism among them, and Shamanism has now but few followers. The Buddhists have a Lama of their own, appointed by the Dalai Lama of Thibet, in a monastery near Selenginsk. In this monastery is a school of divinity and one of medicine. According to the medical teaching of the Lamas most diseases arise from disorders of the liver, which is looked upon as the most important organ in the body. Diagnosis, however, depends solely upon the condition of the pulse. The Buriats suffer mostly from scrofula and scurvy. Skin-diseases are rare, notwithstanding their want of cleanliness. Idiotism, cretinism, malformations, and mental disorders are not uncommon, possibly on account of frequent intermarriages; but the race is not dying out, as is shown by the fact that between 1863 and 1893 their numbers increased by 20.4 per cent.—*London Lancet*.

Clerical Breakdown.

The eminent English physician, Sir Dyce Duckworth, addressed a meeting of clergy in England the other day on clerical breakdown. He spoke first of clerical sore throat and then of that line of breakdown all too common among the clergy,—that of the digestive system. Sir Dyce Duckworth advised relaxation in cricket, golf, or cycling; recommended a little good wine and deprecated excessive tobacco smoking. Many of his hearers declared afterwards that they had been total abstainers for many years, and had been the better for it.—*Philadelphia Press*.

The Fool in the Carriage.

When you are travelling there is always a fool in the carriage. He is the man who opens the window every time the train slows up at a station and plunges out up to his shoulders to see what is going on. If the thermometer is twenty degrees below zero he opens the window the minute he hears the whistle, and he keeps it open until the station is out of sight.

He always sits in the seat directly in front of you, and it only takes him three stations to burden you with a cold that will last you till spring, and then have a balance to carry over for the next winter's account.

He never has any business at the station; he never sees anybody he knows; he doesn't know a soul on the line of the road; he never sees anything when he does look out; but all the same, he never fails to look out. His own station is the last one he looks at, and when he gets out of the carriage he leaves the window open.—*Tit-Bits*.

The Disinfection of Rooms after Infectious Diseases.

The absolute disinfection and sterilization of a room in which a patient with an acute infectious disease has been treated is considered at present extremely difficult, if not impossible. We refer, of course, to rooms in ordinary houses which cannot be washed down with large amounts of strong antiseptic solutions. The usual procedure of burning quantities of sulphur, of washing the walls and removing all movable pieces of furniture, is considered to be all that is practically possible. Dr. G. Barnet has been

working, in co-operation with Dr. Trillat, for the purpose of determining whether a better method cannot be found for the disinfection of infected rooms, and he claims to have obtained successful results. The substance which he used is a solution of formaldehyde in alcohol. He has devised an apparatus by which the vapors of this substance are diffused through the room, and he says that with it he can disinfect with absolute certainty in six hours three hundred cubic metres of air. Cultures of various specific micro-organisms placed in the room are rendered absolutely sterile by this process. The vapors of this formaldehyde have no injurious action upon the furniture of the room, and they disappear rapidly after a few hours of airing. The process suggested and the apparatus devised appear to us to be rather expensive, but if they do all that Dr. Barnet claims, they will prove a very useful addition to our methods of fighting disease.—*Medical Record*.

Period of Incubation.

The interval between exposure to a disease and its first appearance is called the period of incubation, and this varies widely in different diseases, and often, too, the same disease in different persons according to circumstances. The Clinical Society of London, wishing to establish a period of incubation for various diseases, instituted a series of investigations with the following results :

Diphtheria.—In this disease the incubation period does not, as a rule, exceed four days, and is more often two days. It may also extend to five, six, and seven days. The infection may take place at any time in the course of the disease. Mild cases may spread it.

Typhoid Fever.—This may vary within wide limits twelve to fourteen days, but not infrequently it is less. As the disease is usually introduced into the system by food and drink, it is not carried from one person to another, but several may get it from the same source. Contaminated water and milk is the usual cause.

Epidemic Influenza or "Grippe."—The shortest incubation period in this disease is from a few hours to three or four days. It generally strikes suddenly and without warning. A patient may carry infection throughout the whole course of the disease.

Measles.—The incubation period of measles is usually short. It is counted from the date of the eruption, which decides the disease.

Mumps.—The incubation period of mumps is rather long, from one to two weeks, and the chances of infection diminish daily.

Rubeola, Rötheln, or German Measles.—This has a long incubation period, like ordinary measles, and its infectivity diminishes in a day or two after the rash disappears.

Variola or Small-pox.—The incubation period of this disease is from one to three days.

Varicella or Chicken-pox.—The period of incubation is slightly longer than variola.—*Popular Health Magazine.*

Note on the Value of Antitoxine.

Dividing the number of cases for the first five months of the present year into two classes, those in which antitoxine was used and those in which it was not used, we have the following: The number of cases in which antitoxine was used was 36, and the mortality 2, or 5.57 per cent. The number of cases in which it was not used was 141, and the mortality 20, or 14.1 per cent. The number of cases from which no returns could be had was 15. The total number of cases during the period from January 1 to May 29, 1895, was 192, the number of deaths 26, and the percentage of deaths 13.5.

While the percentage of cases during the first five months of the present year has been 12 per cent. in excess of the number of cases for a corresponding period of last year, the mortality this year has been 50 per cent. less than that of last year. This year, owing to the established method of bacteriological diagnosis, many mild cases of diphtheria have been discovered which were formerly determined to be sore throat, and, therefore, principally the increase in cases of the disease. Antitoxine has not been generally used in the mild cases. It has rather been reserved for those severe cases of the disease which, previous to the introduction of this new remedy, entirely baffled medical skill. Judging by the effects in Rochester, we are compelled to declare in favor of antitoxine as a most valuable agent in diphtheria.—*Report of the Rochester (New York) Board of Health for May.*

One of Pasteur's Boldest Experiments.

The secret of attenuation had thus become an open one to Pasteur. He laid hold of the murderous virus of splenic fever and succeeded in rendering it not only harmless to life, but a sure protection against the virus in its more concentrated form. No man, in my opinion, can work at these subjects so rapidly as Pasteur without falling into errors of detail. But this may occur while his main position remains impregnable. Such a result, for example, as that obtained in the presence of so many witnesses at Melun must remain an ever memorable conquest of science. Having prepared his attenuated virus, and proved by laboratory experiments its efficiency as a protective vaccine, Pasteur accepted an invitation from the president of the Society of Agriculture at Melun to make a public experiment on what might be called an agricultural scale. This act of Pasteur's is, perhaps, the boldest thing recorded in this book. It naturally caused anxiety among his colleagues of the Academy, who feared that he had been rash in closing with the proposal of the president.

But the experiment was made. A flock of sheep was divided into two groups, the members of one group being all vaccinated with the attenuated virus, while those of the other group were left unvaccinated. A number of cows were also subjected to a precisely similar treatment. Fourteen days afterwards, all the sheep and all the cows, vaccinated and unvaccinated, were inoculated with a very virulent virus; and three days subsequently more than two hundred persons assembled to witness the result. The "shout of admiration," mentioned by M. Radot, was a natural outburst under the circumstances. Of twenty-five sheep which had not been protected by vaccination, twenty-one were already dead, and the remaining four were dying. The twenty-five vaccinated sheep, on the contrary, were "in full health and gayety." In the unvaccinated cows intense fever was produced, while the prostration was so great that they were unable to eat. Tumors were also formed at the points of inoculation. In the vaccinated cows no tumors were formed; they exhibited no fever, nor even an elevation of temperature, while their power of feeding was unimpaired. No wonder that "breeders of cattle overwhelmed Pasteur with application for vaccine." At the end of 1881 close upon 34,000 animals had been vaccinated, while the number rose in 1883 to nearly 500,000.—*From "Louis Pasteur, Scientist," in the November Review of Reviews.*

Somatose.

Among the many advances made in the healing art during recent times, none is of so vital importance to the general public than the radical change in the views of medical men on the question of diet in disease. While formerly persons suffering from acute diseases were condemned to a dietary of soups and gruels, it is now recognized that in order to make good the consumption of tissues in exhausting disorders, to support the strength, and to facilitate recovery, it is necessary to select foods of positive nutritive value. In the selection of such a food, however, there are certain other factors that must be considered besides its nutritious character,—it must be readily digested and assimilated, must be palatable and well relished, and must not disturb the weakened digestive organs. Physicians are now agreed that in the alimentation of persons suffering from acute troubles, as, for instance, pneumonia and typhoid fever, the albuminous foods are best adapted to check the inroads of disease and effect a rapid restoration to health, while in those chronic debilitating disorders of which pulmonary consumption is a prominent example, the albumens also constitute an important and indispensable part in the diet. It is for this reason that milk, which is essentially an albuminous food, has been extensively utilized in both acute and chronic diseases. There are certain disadvantages connected with a milk diet, however, which not infrequently neutralize all the good to be derived from its use, and therefore demand careful consideration. Some persons manifest a decided repugnance towards milk and are unable to digest it in any form, while the large quantities in which it must be given to maintain the nutrition may overtax the enfeebled and sensitive digestive apparatus of the patient. The custom has, therefore, originated of administering an additional supply of albumens derived from beef, or, if necessary, of replacing milk and other articles of food entirely by these preparations. Until quite recently, however, all efforts to produce a meat preparation embodying the active nutrient principles of beef, the albumoses, free from admixture with undesirable substances, such as peptones and extractives, have been more or less unsuccessful. It was left to the Farbenfabriken, of Elberfeld, one of the most extensive and celebrated chemical manufactories in the world, a concern employing over sixty skilled chemists, to introduce into the market a food product consisting completely of the pure albumoses of meat in a concentrated, digestible form,

together with the nutritive salts. This preparation, known by the name of somatose, has been thoroughly tested by medical authorities, both in Europe and in this country, and among those who have set the seal of their approval upon it are Professors Chittenden, of Yale College, Woodbury, of Philadelphia, Bartley, of Brooklyn, New York, Von Noorden, Witzel, Stintzing, and Riegel, in Germany, Drs. Helbing and Passmore, of London, and many others of equal note. On the ground of the immense number of observations published in medical journals, it may be confidently asserted that somatose constitutes an ideal nourishing and strengthening food for persons suffering from diseases attended with fever, such as pneumonia and typhoid fever, from acute troubles of the stomach and intestinal canal, from exhausting and wasting diseases, such as pulmonary consumption, anæmia (impoverishment of blood), and is an invaluable restorative for convalescents. Employed in connection with cow's milk it has been found an excellent food for infants unable to nurse at the breast, for feeble and delicate children, and those suffering from rickets, marasmus, scrofula, etc. From the many favorable reports on somatose in the medical press, the following, taken from the *Popular Health Magazine*, of October, 1895, presents the advantages of somatose in a brief yet clear manner, and is therefore subjoined :

“Thanks to the late achievements in modern physiological chemistry, it has been demonstrated that a meat preparation should consist essentially of the albuminous constituents of meat in a concentrated form and so prepared as to be readily assimilated. It has been found that these conditions are best realized in a good product composed of albumoses from which the peptones have been eliminated as completely as possible. Such a preparation is somatose, which has been shown by accurate comparative tests to contain the highest percentage of albuminous matter of all the food products in the market. Somatose is readily digested, and completely assimilated, and rapidly makes good the waste of tissues in disease, producing a marked gain in flesh strength. Its solubility in all ordinary fluids, tastelessness, and odorlessness, as well as its freedom from irritating effects on the gastro-intestinal tract, are advantages not to be underestimated, especially in the alimentation of capricious invalids and children. Owing to its immense proportion of concentrated nitrogenous material, somatose need be administered only in small quantities, and conse-

quently a given quantity will reach much farther than that of any other food product. It is, therefore, not only the most nutritious but the least expensive meat preparation in the market, the last being a factor of considerable importance in the feeding of chronic invalids and convalescents."

Girls' Headaches.

"When I went to school," said a charming grandmother of our acquaintance, "I never knew what it meant to have a headache. Yet my granddaughters complain of them almost constantly. Something must be wrong. What is it?"

In the search for causes thus instituted, it was at first suspected that lack of proper ventilation in school or sleeping-rooms was to blame. This not proving to be the case, the food was inquired about, and several things appeared to the sensible grandmother to be wrong.

The girls were allowed to eat what, when, and what quantity they chose, not seldom omitting their meals entirely. "Don't force them to eat," had been the parental injunction. "Young people will always eat as much as is good for them." Unfortunately this is not always the case. There are many young girls who have no appetite for their breakfast, the really most important meal of the day, and if unchecked will start upon their day's work with no better provision to meet its demands than a cup of coffee and a cracker. The blood is called to the brain by the first hours of study, and the lack of nourishment, though not felt as such, is very perceptible in its effects. After two or three hours of work the girls can do no more. They are exhausted, fretful, unreasonable; their "heads ache." They feel but little more appetite for luncheon than for breakfast, and that little they satisfy with the least nourishing sorts of food which are placed before them. At the late dinner—the only meal to which they come of their own accord—they eat more, perhaps too much, in fact, but rarely of that which is best suited to their real needs.

After the grandmother's observations had shown her this state of things, she asked that one of her granddaughters might be loaned to her for one year. As all lived in the same city, attended the same school, and complained of the same trouble, her proposed experiment was a fair one, and one of the girls was loaned to her grandmother for the period desired.

At first Mabel felt it a hardship that she was not allowed a late dinner with the rest of the family, but, instead, was given only a light supper, very like that which excited the ire of the gouty patient in "Sandford and Merton," only, instead of the porridge which accompanied the latter's prunes, Mabel was served with plentiful supply of good brown bread and milk. Like those of the irate gouty man, Mabel's prunes were cooked without sugar.

Even the first morning after this there was a slight improvement. Mabel did not feel the usual disgust for food which had formerly kept her from reaching the breakfast-table until the last allowable moment. Indeed, she felt a mild degree of appetite, which enabled her to swallow a small portion of the cereal, fruit, and cream which always formed the first course of her grandmother's breakfast, though she declined the delicately poached egg which succeeded. Coffee was prohibited.

Luncheon, Mabel found, was to be considered her dinner, and she was expected to consume a goodly portion of beef, lamb, or chicken, and at least one wholesome vegetable. Fruit or light puddings were usually her dessert.

Before a month was out Mabel's "headaches" had become things of the past. She could work well and easily. She was glad to walk or play games with the strongest of her fellows. She was happy as she had never been before, and as no girl can be who is not eating plainly, regularly, and plentifully, as well as otherwise living hygienically.

The ventilation of school- and sleeping-rooms is not so often defective now as in the period which intervened between the days of fireplaces and of sanitary science, but there is still abundant chance for improvement in the way of avoiding draughts and chills, as well as in preventing the stagnation of the air. Foul air and cold draughts are alike fatal, but the latter are the speedier in their action. A plan practised in a most successful school kept for more than forty years in Litchfield, Connecticut, was not to allow a draught of air to blow upon sitting pupils, but to change school-rooms every hour during the months when fires were not necessary.

There were two large school-rooms, one of which was used every alternate hour of the school day, and while one was occupied the other was being exposed to as thorough a draught of air as could be coaxed through it. In winter this change was not required, as a large wood fire in an open fireplace at each end of the school-room made the air constantly fresh.

The lady who kept this school died long ago and left no successor, but many were the mothers who owed both bodily and mental strength to her judicious training. It was noted of her school that in its four decades of existence no deaths had ever occurred in it, and no case of serious illness. Her table, though plain, was always abundantly supplied with palatable and nourishing food. In her time tight-lacing was the rule, but she would retain no pupil who would wear stays. Low, thin slippers were all that fashion permitted, but Miss Pierce, superior to its dictation, insisted that all her girls should be shod in stout, high-ankled, calfskin shoes over warm stockings. Out-of-door games received every encouragement, and in bad weather an immense open garret was used for games of "shuttlecock and battledoor" and "graces." At the first signs of a cold, or even of languor, the drooping one was, however unwillingly, sent to bed, and kept there on a spare but nourishing diet until she was palpably in the best of health and spirits.

Such was the celebrity of Miss Pierce's school that pupils came to her from the principal cities of the Union. Said the quondam pupil who told us the foregoing, "We all felt that to be able to say that we had been pupils of Miss Pierce was equivalent to a college degree. We studied as hard as any modern college student, and not one of us was subject to headaches while we were there. We did not know what they were."—*Harper's Bazar*.

The Modification of Germs by Culture and the Origin of Disease.

We have received the following speculations from a physician on the ever interesting question of the development of disease: Can zymotic disease, he asks, originate *de novo*? And are disease-germs capable of modification in accordance with their appropriate epochs? The questions take us into somewhat transcendental regions, but are interesting, and may prove stimulative of ideas to some of our readers.

In the student days of those of us who can look back somewhat over twenty years bacteria, bacilli, and cocci were mythical beings. Their existence was inferred by such acute reasoners as the late Dr. Murchison, but was "not proven." Now, bacteriology is a science more or less exact. It is a thing in the realm of fact

that cultures of germs can be made, and that by successive cultures their virulence may be subdued. With germs of disease as with their culture, "*Emollit mores, nec sinit esse ferus.*" That the converse may also be true, and that by suitable conditions germs of disease may become more virulent appears probable, and, taken together, the fact and the theory may possibly throw some light on that vexed question, the origin of disease.

Can zymotic disease originate *de novo*? Surely it must have done so in the past, and what has been may be again. The temperature of the incandescent mass which once represented our planet was certainly too high for any disease-germs to live in,—*ergo*, they must at some time have originated on the earth, either before, contemporaneously with, or after the advent of man. That they can have travelled through the ether in meteoric form seems to be an absolute impossibility, and we must regard them as earth-born atoms.

The modern theory of evolution places man late in the scheme of organic life, and, if it be correct, the lower animals may have had germs of disease ready developed to make him their prey. Looking backward along the evolutionary line, the question that suggests itself is this: Man is for the most part the outcome of heredity and environment; may not a disease-germ also be the result of heredity and environment, and be modified equally with its host by these factors? Into the "will" or "spirit" force, which is behind and pervades all phenomena, we are not inquiring. We must try to answer our question in the light of the physical, not the psychic. We take it for granted that a scarlet-fever germ will invariably produce scarlet fever, a typhoid-fever germ typhoid fever, just as man procreates man. But, granting that man is a being slowly evolved, capable of infinite modification or infinite epochs, so may disease-germs be capable of modification in their appropriate epochs. Experiments in attenuation of virus go to prove that in the laboratory such modification may be comparatively rapid. It is, then, possible that the first bacillus or coccus may have been a good cell gone wrong, begetting a progeny of still more errant children. If the germs of such diseases as scarlet fever and diphtheria, typhoid fever and cholera, measles and rōtheln, varicella and variola, be not really distinct species, but at least first cousins, produced by a series of evolutionary changes from similar or identical parents, the occurrence of new diseases in different eras ceases to be a mystery, and comes

under the law of development by evolution, which appears to be the universal order.

If we take as one illustration syphilis, which is essentially a germ-disease, we find that it never originates in the conventional connection of a healthy male and female, and we have good reason for the inference that it can only be produced by promiscuous intercourse. That being so, where does the germ of syphilis originate but in the perverted cells of incontinent animals? Again, how can sporadic cases of cholera of the Asiatic type be accounted for? A person dies in twenty-four hours with collapse, cramps, and rice-water evacuations; yet there is no epidemic of cholera, though diarrhœa and typhoid fever may be prevalent in the district. Does not such a case point to an increased virulence, or a development under suitable conditions of some less malignant germ? Supposing this hypothesis to be correct, what is the practical lesson it teaches? It is simply this: that disease-germs should be attacked in their simpler forms, and the conditions for their further development denied them. Pure air, pure water, healthy life, both of mind and body, and a large reserve of vital energy are the chief antagonists to the evolution of the zymotic germ.—*London Lancet.*

Tomato Gravy.

Much is said, and none too much, of the dietetic virtues of the apple. Next to it, perhaps, we may rate the tomato. It has one virtue that we have never seen mentioned: the property of emulsifying fats. To this may be added a singular faculty of assimilating itself to the flavor of meat gravy with which its juice may be cooked. Our housekeeping friends may try a fried steak, for once, by cooking a little tomato juice in the sizzling pan just after removing the meat. Any melted fat, or baked shreds and juice adhering to the iron, or butter applied to the meat, entirely disappear in an emulsion, making a rich, copious, reddish-brown gravy, with the true meat flavor scarcely modified by a slight piquant acidity from the fruit. If the steak has been left in a vessel to save its drainings since it was cut, and this juice be put in with that of the tomato, the gravy will be by so much enriched and enlarged, as well as thickened, by the coagulation of the additional albumen. Colandered tomato pulp with this meat juice makes a thick sauce of like rich flavor, for roast or stew.—*The Sanitary Era.*

The Origin of Cholera in Mecca.

In 1893 the widespread prevalence of cholera in Mecca had its beginnings in the case of certain Turkish soldiers who had arrived from the Yemen, where the disease had for some time past prevailed. This year it had much the same beginning. Turkish soldiers being again the first victims, and this at a date which precludes all possibility of the disease having been imported by sea from India. The onset of cholera this year has occurred many weeks before the Haj, whereas it generally begins just before or during the period in question, and after the arrival of the caravans by land and by sea. The occurrence of cholera in English pilgrims amid the dirty and neglected conditions of the quarantine island of Camaran has had no connection with the occurrence at Mecca, for the first cases in the latter city took place whilst the unfortunate pilgrims, who, though healthy, had been compelled to quit the pilgrim vessels *Mohammadi* and *Zobeida* for the hovels or huts of Camaran, were still in quarantine on the island. According to the *Times*, M. Henri Monod, at a recent meeting of the Comité Consultatif d'Hygiène of France, blamed England and her refusal to ratify the Paris Convention for this year's cholera at Mecca; but he should remember that if France would only give up her quarantine notions in the Red Sea, as she has begun to do in the Mediterranean, the way of England to do that which is right would be much clearer. It is quarantine in the Red Sea that endangers the lives of Indian pilgrims and constitutes the main, if not the sole, danger of cholera reaching Mecca by way of the sea. If our pilgrims were only allowed, when certified after a long voyage to be free from cholera, to sail on to Jeddah the danger of cholera travelling by the sea route would practically be at an end. Turkey objects to this; sanitary fees and dues are a matter of importance to her local and even central administration, and it is the proposals submitted by France and her delegates to maintain the quarantine system in this part of the world that largely prevents the adoption of sounder principles. We are not pretending here to endorse all the reserves of Great Britain as regards the Paris Conference, neither do we assume that the altered action of France as to quarantine in the Red Sea could get rid of the major danger of the transport of cholera to Mecca by land routes, whether from the Yemen or elsewhere; but we are convinced that so long as France is guided by those who still cling to old remnants of the antiquated quarantine

system under the new name of "observation," so long will the real remedies against cholera be delayed. What is the use of expecting Turkey to spend vast sums on the prevention of cholera in her towns and holy places so long as leading and intelligent nations are always advocating the alternative of quarantine, an alternative which has the immense advantage of helping to fill the somewhat empty coffers of the principal state concerned and those of its local chiefs and officials? M. Henri Monod is, we believe, one of the leading advocates of sanitary measures as such for the prevention of cholera. If he would convert his colleagues to his own views, this country would have much less difficulty in uniting with France for the prevention of cholera.—*London Lancet*.

Precautions Concerning Consumptives' Homes.

The Paris correspondent of the *Press and Circular* refers to the following matter of governmental action in the location of institutions where tuberculous persons are aggregated: "The Minister of the Interior asked, some months ago, the Sanitary Committee of France its opinion on the rules to be followed in the establishing of a sanitarium for consumptives, and on the precautions to be taken to suppress the dangers of contagion to which establishments of this kind might expose the inhabitants of the immediate vicinity. The committee replied that institutions like the above presented as great a benefit to society at large as to the patients; no danger could result from the presence of such an establishment in a neighborhood, provided that proper precautions were observed in their management; that a zone of cultivated land should surround the hospital so as to isolate it from any other habitation, and that the patients be forbidden to mix with the inhabitants of the region."—*Journal American Medical Association*.

A Specimen Community.

The little town of Hutto, Texas, had an epidemic of typhoid fever last year, from the effects of which twoscore citizens lost their lives. The evident cause of the disease was the drinking-water, mainly surface and seepage. Nevertheless, an effort to raise \$1200 with which to sink an artesian well met with failure.—*Texas Sanitarian*.

Marriage among Indians.

Dr. W. Thornton Parker thus writes to the *New York Medical Times*: A recent writer on our North American Indians has stated that marriage, the bulwark of our civilized community, is lightly esteemed among savages, and that in some of the tribes communism as to sexual relation prevails, and that virtue and chastity are of little worth.

The writer does not state to which tribes these remarks apply. Evidently his information has been derived very largely from hearsay concerning decayed and disappearing tribes.

In a paper concerning North American Indian womanhood, published some time ago in the *Annals of Gynecology*, I have quoted from others, but I have done so only after years of patient personal investigation, with an experience dating back twenty-five years among many different Indian tribes. I must take strong exception to any statement which reflects on the general character of our American Indians. As one writer has stated it, "They are even more virtuous and more strict in regard to the marriage tie than the whites. Their women are compelled by custom and sentiment to be virtuous. It is positively erroneous to state that 'the sexual appetite in Indians is the uncontrolled and uncontrollable desire of the wild beast.'"

I refer, of course, in my writings, to the full-blooded North American Indians. Statistics with regard to half-breeds are valueless. I have discovered another statement to which I am also obliged to take exception, and it is that "both local and constitutional forms of venereal disease abound among Indian women. The frequency of syphilis coupled with disease are almost synonymous terms." I recognize the fact that this is the popular notion, but it is absolutely false. To judge of the merits of statistics, personal experience is necessary, and it is not right to paint our aborigines in such hideous colors.

The great mortality among infants, and the prevalence of glandular and pulmonary disease among many of those who survive infancy, are sometimes used as evidence that it is venereal disease which has made such terrible inroads on the Indian constitution. Any one who has resided a considerable length of time among the genuine North American Indian tribes will be sure to recognize the unreasonableness of this statement. During a long residence at one reservation, only one case of venereal dis-

ease presented itself for treatment, and that was in a half-breed who had lately returned from a white settlement !

Our ideas depend upon the tribe from which we get our statistics. The genuine North American Indians are not the degraded people of New Mexico, Arizona, and Southern California, but will be found to be human beings possessed of the manliest attributes, believers in the Divine Being, whom they know and worship as the Great Spirit.

They are fearless, vigorous, manly, and, generally speaking, virtuous. The Indian's ideas of right and wrong are of such a character as to rouse our respect and surprise. To live among them is certain to develop mutual regard ; and, in my high opinion of their general worth, I have but echoed the sentiments of the manliest and truest people it has been my privilege to meet.

Moderation.

To the thoroughly healthy person who can supply himself with any kind of food desired, the natural demands of the appetite afford the safest guide for both quantity and quality. A mixed regimen of animal and vegetable food is the natural diet. In the most valuable kinds of food, the carbohydrates (starch and sugar), fats, albuminous and inorganic substances are present in certain proportions. Milk, bread, eggs, beef, mutton, and fowl are rich in albumen. Certain vegetables, such as potatoes, beans, and pease, are valuable for their starch and albumen. The potato is practically starch, while the legumes are rich in albumen. The pulpy and succulent fruits and vegetables are valuable for their watery and saccharine juices.

The herbaceous substances, spinach, lettuce, celery, and the sweet fruits may be eaten in a cooked or uncooked state, and are a valuable addition to a nutritious diet, in supplying the salts of the vegetable acids.

On the average, less food is required in warm weather than in cold. The quantity much depends upon the amount of physical activity.

The average American eats most injudiciously. To even the moderately prosperous all the dainties of the world are within reach. The supply offered is out of proportion to the need. The dainties tempt the appetite, and, as a result of frequent yielding,

many varieties of stomach disorders are developed, and the unhappy, morose, melancholy dyspeptic is created.

The dyspeptic is an example of excess,—excess in eating or drinking, or both. The points to be observed in eating are these: Adhere to a rational diet. Take food at regular intervals; eating between meals is a pernicious habit, giving the stomach no opportunity for rest. Eat slowly; masticate the food thoroughly, and, above all, do not overeat.

It is impossible to lay down iron-clad rules as to what shall and what shall not be eaten. The intelligent person learns from experience the foods which agree and disagree with him.

Water is the best beverage, and it is well to drink copiously of it between meals. Especially is it wise to take a glassful a couple of hours after eating. Avoid drinking ice-water before meals; it reduces the temperature of the stomach and retards digestion. All forms of alcoholic beverages are to be avoided. Even small amounts of alcohol prolong and hinder digestive processes, and increase the temperature of the body by diminishing the oxidizing power of the tissues.

Drink lemonade in moderation, drink koumiss, drink ice-cream soda, but drink it in moderation; the danger of it is in excessive indulgence. As is well known, the sweets produce fermentation. Drink milk if it agrees with you. Avoid fried foods and pastries; eat boiled or baked meats and fowl, soft-boiled or poached eggs, well-cooked and digestible vegetables, broiled and baked fish, cold light bread of wheat, Graham or entire wheat flour; all varieties of fresh vegetables, except radishes and cucumbers, plenty of fresh ripe fruit, but avoid fruit at all deteriorated in quality. Ices and ice cream are delicious and nourishing articles of diet. But in eating them moderation is ever the watchword.—*Philadelphia Press*.

Sources of Infection in Nursing Children.

M. Marfan gives as his opinion that the first childhood reaches to the fifth year, when the first four large molars appear. But the nursing period (first two years) and the first twenty days after birth are much more interesting. Infections, hetero-, auto-, and congenital, are especially easy and frequent then. For example: (1) In the first months of life, experimental pathology and clinical experience seem to show that infection of maternal origin is

possible not only for syphilis (Roger and Parrot), but also for variola, measles, anthrax, pneumococcus, streptococcus, and tubercle bacilli. Later experiments on variola, vaccinia, tetanus, and diphtheria have shown that congenital immunity is still more frequent. Of short duration, the latter may nevertheless explain some of the differences in receptivity. (2) Premature rupture of the membranes, infection by the umbilical cord and otitis, rhinitis, stomatitis, ophthalmia neonatorum, tetanus, puerperal infection, hemorrhagic septicæmia. (3) Natural lactation (rare), digestive disorders, pyæmic disorders, suppurative peritonitis, and parotitis (Budin, Quinquaud, Karlinski) may also confer immunity. Artificial lactation may communicate aphthæ, tuberculosis, and especially scarlatina, typhoid fever, and different saprogenic microbes which may more or less change the alimentary value of the milk. Defective alimentation, either in quality or quantity, predisposes to different intoxications or infections of intestinal origin, in which the different varieties of the bacillus coli communis play the most important rôle. (4) The germs of eruptive fevers, of mumps, whooping-cough, grippe, diphtheria, pneumonia, and tuberculosis generally gain access by the respiratory tract or the bucco-pharyngeal cavity. Many of these are rare in the nursling; tuberculosis is exceptional in the first three months, but very common in the second year. The infections of the respiratory tract may be primitive, or, on the contrary, follow disorders of the digestive system. (5) The integuments of the head, face, and perianal region offer frequent sources of infection by the staphylococci or streptococci,—impetigo, pustular folliculitis, multiple subcutaneous abscesses, localized gangrene. In concluding his very interesting article, Marfan justly remarks on the indefinite boundaries between the autogenic and heterogenic infections, insisting on the fact that certain microbes inhabiting the body cavities may, in a sick patient, acquire a virulent character and become new infections.—*Journal American Medical Society.*

At the Beer Centre.

Dr. Bollinger, of Munich, Germany, says he rarely finds a person there with normal heart and kidneys. The latter have been overtaxed by excessive beer-drinking, and the heart suffers before long from the degeneration of the kidneys.

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